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An Elementary System of Physiology.—By John Bostock, M. D. F. R. S., &c.—Vol. I. London, 1824. 8vo. pp. 518.

Physiology has been peculiarly the field of speculation and hypothesis. The animal machine is so intricate in its structure—so mysterious in its organic functions and various sympathies, and so entirely beyond our comprehension as to the spring of all its actions, that experiment and observation could advance but slowly in the investigation of its economy. As a natural consequence of the slow pace of correct knowledge in relation to the nature and functions of this wonderful frame of vital mechanism, theory and hypothesis had, for a long time, almost an unlimited sway. The mind, impatient of the tardy progress of experience and observation, is apt to pass the legitimate bounds of inquiry, and to press forwards into the dominions of fanciful speculation, where, if it cannot find truth, it may at least be gratified by the contemplation of her semblance.

In reviewing the history of Physiology, we find that during a long series of ages it consisted of but little else than a continued succession of groundless theory and conjecture. Indeed, it was not until the time of Haller that it merited the name of a science. "This great man," as our author truly

observes, "is in every point of view entitled to the appellation of the father of modern physiology." Since his time, hypothesis and gratuitous speculation have been gradually disappearing before the light of observation and experimental research. The investigations of Hunter, Bichat, Spallanzani, and more recently those of Majendie, Philip, Bell, and others, have given an entirely new aspect to physiology. Experiment and rational induction are now acknowledged as the only proper means for advancing our knowledge in this science. Indeed, the ardour and ability with which physiological studies are at present pursued, both in Europe and in this country, are, perhaps, greater than ever, and cannot fail to advance us rapidly in the science of the animal economy.

Although physiology is at present cultivated with great success,—and although an intimate acquaintance with it is unquestionably essential to the formation of an enlightened physician, yet we cannot help remarking, that in many of the medical schools of our own country it does not receive that attention as a branch of study, which its importance merits. In our own university, especially, it has not for a few years past been touched upon, except incidentally by the professor of anatomy. We do not mention this as a fault in the present faculty of this institution. The cause lies in the professorships of the Theory and Practice of Medicine and of the Institutes being united in one person,—an arrangement which necessarily precludes, from the short period allotted to a course of lectures, an adequate attention to the latter department of instruction. We know, too, that by some of our ablest physicians no books on Physiology are put into the hands of such students as resort to them for private instruction. This is not as it should be; for nothing distinguishes so much the enlightened and scientific physician from the mere mechanical routine practitioner, as a comprehensive acquaintance with the laws and functions of the animal economy. That a man may cure diseases without being an able physiologist, is as

true as that a sailor may navigate a vessel without being acquainted with the astronomical principles of navigation. Yet who can doubt that the enlightened physiologist will, cæteris paribus, be a more successful practitioner, or that he who is initiated in the principles of practical astronomy will not be a more able navigator. But it is time that we attend to the work before us. "When we reflect," says the author," upon the distinguished share which our countrymen have borne in improving the knowledge of the animal economy, it may appear not a little remarkable, that we have no original work in our language which contains a systematic and connected view of modern physiology." This deficiency is very fully and ably supplied by our author. His acknowledged abilities as a man of extensive erudition and science, qualified him peculiarly for an undertaking of this kind. Viewing the work in all its parts,—in its arrangement, its judgments, in the perspicuity of its details, and in its materials and particular structure, we regard it as decidedly the best system of physiology extant. By this, however, we do not mean to say that it is in all respects an unexceptionable work. On the contrary, we believe it to be liable to some well-grounded objections, which the author would have done well to have attended to. There is, we think, too much discussion in the work, for an elementary treatise, and too much space occupied in reviewing and refuting the exploded hypotheses of former physiologists.

The author has not adopted any of the arrangements which have been formed on the subjects of physiology. He arranges the solids, in relation to their chemical composition and uses, under five divisions:—"the osseous matter, the membranous, the muscular, the adipose, and the cerebral." He does not, however, follow this arrangement in the description of the solids. The plan which he adopts is founded rather upon the functions which the body exercises, than upon its composition. "I propose, says he, to give an account of both the solids and the fluids as I successively treat of the

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functions of those parts in which they exist in the greatest quantity or the most perfect state."

Having, in the introductory essay, given a succinct view of the most prominent physiological systems from Hippocrates down to Bichat, he enters, in the first chapter, on the distribution, and the physical and vital properties of the *membranous structure.* By membranous matter he means "not only what has been usually called membrane, but the whole of the substance which possesses the same mechanical structure, and the same chemical properties." It corresponds nearly with the "white parts" of the earlier anatomists,—the cellular texture of Haller, the mucous tissu of Bordeu, and the tela mucosa of Blumenbach.

There is no term more frequently and yet more vaguely employed, than the word organization.—"In its most extensive acceptation," says the author. "it may be regarded as nearly synonymous with the word arrangement, signifying that the parts of the organized body are placed, according to some specifick structure, visible to the eye. Besides this kind of physical organization, the word is employed by physiologists in a more correct sense when it is applied to a system composed of a number of individual parts, possessing each of them appropriate powers and functions, but all conducive to the existence and preservation of the whole."

There appears to us an impropriety, however, in the former of these definitions of the term, because, as the author himself observes, it will apply equally to living and dead matter. A crystal, according to this acceptation of the word, is an organized body, although we undoubtedly attach a different meaning to it, when applied to living matter. We should define organization to be that peculiar combination and disposition of the elements of matter which gives it an aptitude for vital phenomena. Cuvier considers the existence of both solids and fluids essential to an organized body, "the latter being the media through which its functions are performed, and the former being necessary to

contain the fluids." "This view of the subject," says our author, "may be correct, but in forming a conception of the ultimate parts of an organized body, we must at length arrive at a *solid* fibre which contains no fluid, and which is however composed of regularly arranged particles." It may be observed, however, that even the ultimate fibre is probably penetrated with a fluid, which is essential to its character as an organic substance, and without which such a fibre, though still composed of "regularly arranged particles," is but an arrangement of dead particles, and wholly incapable of vital properties.

The author's account of the chemical composition of membrane, is very minute,—perhaps we may say, too minute in a work purely physiological.—Indeed, his predilection for chemical investigations is abundantly manifested throughout the whole work. We by no means regard the chemical nature of organic matter, as an object foreign to the physiologist; but it must nevertheless be conceded, that the information which we derive from this source, can contribute but very little to our knowledge of the proper object of physiology—the laws and phenomena of the animal system. Having described the structure, properties, and composition of membranous matter, he proceeds to a more particular account of the various forms under which it exists: these are the cellular texture; membranes which are divided into mucous, serous, and fibrous; tendons, ligaments, and cartilages; epidermis, corpus mucosum, and cutis; and the nails and hair. Membrane, our author observes, "is not possessed of any properties that are peculiar to the living system;" nor is he "disposed to admit that the cellular texture and the tendons, possess either sensibility or contractility." We cannot by any means acknowledge the correctness of these opinions. These parts must either be dead matter or living;—that they are not dead, or devoid of vitality, is obvious; they are therefore vital, and consequently possess that peculiar property which distinguishes living from dead matter. It is therefore mani-

festly wrong to say that membrane "possesses none of the properties peculiar to living matter," although it may not evince either sensibility or contractility. With regard to the two forms of membranous matter, the tendons and ligaments, it is equally erroneous to assert, as many physiologists do, and amongst them our author, that they are devoid of sensibility.—It is true that these structures may be cut, punctured, or irritated by chemical agents without producing any pain. It is equally true, on the other hand, that there is a mode of exciting the sensibility of these parts, which produces in them acute sensations of pain,—and consequently shows them to be endued with a certain modification of sensibility. If we irritate a tendon or ligament by the ordinary excitants which produce pain in other parts, no sensation will be produced. But if this same ligament or tendon be twisted or extended with force, great pain will be excited.—"It results from this experiment," says Bichat, "that the ligaments, insensible to agents which cut, tear, and disorganize them, have great sensibility to those which stretch them beyond their natural degree. They have then their mode of sensibility of relation, and this mode is analogous to their functions. Removed by their position from all exterior excitation which can chemically or mechanically affect them, they have no need, like the skin exposed to this sort of excitation, of a sensibility which transmits the impression of it. On the contrary, very subject to be distended, pulled, twisted in the violent motions of the limbs, it was necessary that they should give notice of this kind of irritation to the sensorium, whose excess might otherwise become fatal to the articulation. Let us remark from this example, that we should never pronounce on the sensibility of an organ without exhausting on it every means of irritation."*

Having considered the membranous matter under all its various relations, the author, in the next place, treats of *Bone.*

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* Treatise on Membranes.—Art. IV. § 5.—183.

It is only within the last forty years, that the chemical nature of bone has been well understood. Gahn was the first who discovered that the earth of bones is the phosphate of lime. For a knowledge of the nature of the animal matter of bones, we are indebted to Mr. Hatchett; he found it to possess the character of condensed albumen. The author's account of the composition, structure, and formation of bones, is very minute, and embraces all the most authentic information extant on the subject. Duhamel thought that bones are formed of concentric laminæ, which are deposited from the periosteum; and the results of his experiments, as he reported them, were generally conceived to afford decisive evidence of the truth of his hypothesis. "We are now assured, however," says the author, "that the succession of differently coloured rings which Duhamel described, could have no existence, or that if any thing resembling them took place, it could have no connexion with the periods during which the madder had been given or withheld." This hypothesis is satisfactorily controverted by Haller, who gave the proper explanation of the manner in which madder communicates its colouring principle to bones. He supposed that this phenomenon depends on the affinity "which exists between the colouring matter and the phosphate of lime,"—an opinion which has since been confirmed by the experiments of Rutherford, and Mr. Henry of Manchester.

The next subject treated of by the author, is *muscle*. He enters into a long and rather tedious account of the various opinions that have been published in relation to muscular structure. He is inclined to adopt the doctrine of Carlisle, on this subject, which alleges that the ultimate muscular fibre is a solid cylinder, the covering of which is a reticular substance regularly granulated and of very little cohesive power when dead." According to Mr. Bauer, whose microscopical observations have lately been employed on various physiological subjects by Sir E. Home, it appears that the globules of blood, when deprived of their colouring matter,

were of the same diameter with the ultimate muscular fibre, "and that the fibre is, in fact, composed of a series of the globules arranged in straight lines."

On the chemical composition of muscle, the author is minute. By digesting muscular substance with sulphuric acid, and afterwards removing the acid by the carbonate of lime, it becomes converted into "a peculiar extractive matter, from which, by means of alcohol," a substance is procured which, from its white colour, has been named *leucine;* and this substance, by subjecting it to the action of nitric acid, is converted into "what has been called nitro-leucic acid."* *Adipocere* is also obtained by digesting muscular fibre in nitric acid. This substance differs from muscular fibre by its containing more oxygen, and less azote and carbon than muscle. Muscle, under certain circumstances, undergoes a peculiar change in its chemical composition; acquiring the character of a saponaceous compound, consisting, as has been ascertained, of ammonia united with *adipocere.* "There was," says the author, "an immense burial-ground in Paris, called La Cimetiere des Innocens, which, in consequence of some improvements that were going forwards, it was determined to remove. This place had been the receptacle for a considerable part of the population of Paris for several centuries. The number of burials was supposed to be some thousands annually; the bodies were deposited in pits or trenches about thirty feet deep, each capable of holding from twelve to fifteen hundred bodies, which were covered with a few feet of earth, so that the whole area, occupying about seven thousand square yards, was converted into a mass, consisting principally of animal matter rising several feet above the natural level of the soil; upon opening the ground for the purpose of removing this prodigious collection of dead bodies, they were found to be entirely altered in their nature and appearance. What had formerly composed the soft parts of the body, was converted

* Ann. Chim. et Phys. t. xiii. 118, et seq.

into an unctuous substance, of a gray colour, and of a peculiar but not very offensive odour. According to their position in the pits, and the length of time they had been deposited, the bodies had undergone this transformation in a more or less perfect manner. The transformation was found to be most complete in those bodies that were the nearest the centre of the pits, and when they had been buried about three years; and in these cases every part, except the bones, the hair, and the nails, seemed to have lost all their specific properties, and to have acquired those of this peculiar substance."

Having explained the nature of the physical extensibility and elasticity of the muscular fibre, the author gives a well condensed and satisfactory account of the doctrines that have been advanced in relation to their vital contractility. Haller was the first who clearly comprehended the nature and extent of this property. He pointed out in what respects muscular contractility differs from nervous sensibility. The difference between the effects of elasticity and contractility were formerly not attended to. "Even Hoffman, Boerhaave, and Cullen," observes our author, "were not sufficiently aware of this distinction." The following distinctive circumstances are pointed out by the author:—"Elasticity always depends upon simple reaction, and is never the source of actual power; it merely restores, in a contrary direction, the force which had been impressed; and even when acting to the greatest advantage, the effect which it produces can never be greater than the amount of the cause, and the reaction can never take place as long as the cause continues to be applied. But in muscular contraction we observe a very different train of events. The mechanical effect is infinitely greater than the mechanical cause producing it, and indeed bears no physical proportion to it, while at the very time that the cause is applied, and is acting with all its force, the reaction commences and far surpasses the force of the agent." Our author, in common with many other physiologists, considers muscular

relaxation as the effect merely of a cessation of contraction. When relaxed, he supposes the muscular fibre to be simply in a passive state. Bichat maintains a contrary opinion; he thinks that relaxation is, in part, at least, an active effect, and that it consists in something more than in mere relaxation. This is certainly the case with the heart, and perhaps in a degree also with the other muscles. Our author's explanations on the use and mechanism of muscles, are at once clear and concise. On the various hypotheses that have been invented concerning the nature of muscular contraction, he is, we think, much too prolix.—It is certainly not in place in an elementary work of this kind, to enter into a refutation of doctrines which every one would now at once pronounce to be erroneous; or to waste much time upon inquiries concerning the nature of phenomena which are obviously beyond our scrutiny. He passes in review the doctrines of Borelli, Stewart, Willis, Bellini, Mayow, Keil, Valli, Prochaska, and of Blane, on this subject. None of these hypotheses, however, as the author observes, deserve any confidence, and he does not himself propose any other on this subject. Having given an account of the structure of the muscular fibre, its chemical nature, its properties, uses, mechanism, and the nature of its action, he passes on to consider the question: "What is the cause of contractility?" This, like the preceding topic, is one upon which a great deal of idle speculation has been advanced. The author gives a sufficient view of the principal doctrines that have been published on this subject. He arranges the hypotheses on this head, under two divisions. *First*,—"Those which ascribe muscular contractility to the presence of some extraneous agent, or power superadded to the animal body; and *Secondly*,—Those which ascribe it to some peculiar state or function of the body itself." Among the first are those which ascribe muscular contractility to oxygen—to caloric or to electricity. Among the hypotheses that come under the second of these heads, that which ascribes contractility to the chemical composition of the fibre,

has had many and very able supporters. "It is found," says the author, "that a certain proportion of chemical elements composes a body endowed with certain properties, and whenever the the elements are put together in a proper proportion, these properties are the necessary result. The same reasoning is applied to the muscular fibre; this body is composed of carbon, azote, and oxygen, which all of them exist in a certain proportion, and when they are united together they form the body which we call a muscular fibre, which possesses a certain set of physical and chemical properties, and also the physiological property of contractility. There is, however, an obvious and well known fact," observes the author, "which is decisive against this supposition, viz: a dead muscle has precisely the same chemical composition as a living one."

The attraction between the particles of muscular fibre, is considerably greater during life than immediately after death. When a muscle is ruptured during life, it is generally the tendinous part which gives way, while, on the contrary, after death, the fleshy part is always weaker than the tendon.

Having completed his account of muscular structure and its properties, the author passes on to the consideration of the *nervous system.* We regard this as the best chapter in this volume, both in relation to the ability with which it is drawn up, and the intrinsic interest of the subject itself. The first section embraces a short description of the nervous system, in which every thing is noticed that has hitherto been ascertained in reference to the structure and arrangement of this system. In section second the author treats of the "*vital powers or faculties of the nervous system, and the mode of their operation.*"

"Physiological sensibility," observes the author, "may be defined, the power which the nervous system possesses of receiving and transmitting certain impressions, and producing corresponding changes in the sensorium, but it is essential to notice that these two operations are not necessarily connected together, or that it is no necessary part of their sensibility

for these impressions to be perceived by the mind, or to become perceptions." Upon the question how an impression is transmitted by a nerve, three hypotheses are noticed. 1.—By means of a subtle fluid, called the nervous fluid; this is the oldest hypothesis. 2.—By vibrations, which is the theory of Hartley. 3.—By electricity, or a fluid analogous to galvanism. This appears to be the prominent doctrine of the day, and is indeed very strongly supported by the recent experiments of Wilson Philip and others. The most interesting and able section on this subject is the one which treats of the *use of the nervous system.* The author has entered fully into the opinions and observations extant on this subject. In relation to the different parts of the brain connected with different functions, he observes,

"Dr. Philip, whose experimental investigations have given him the means of forming a correct opinion on this subject, concludes that the division of the cerebral mass into cerebrum and cerebellum, has no relation to the voluntary and involuntary muscles, but may rather refer to some distinction to the different sensorial functions. The late experiments of M. Fleurens, seem to show that the cerebrum is the more immediate seat of perception, and the cerebellum of volition. This physiologist proposed to discover from what part of the brain irritation may be propagated to the muscles, to what part sensation extends, proceeding from the extremities towards the centre, and what is the immediate seat of volition when it is exercised in effecting muscular contraction. He endeavoured to ascertain these points by gradually removing successive portions of the brain, and noticing the effects of each removal, when he was led to conclude that the two first of these, or, as we may regard them, the centres of irritation and of sensation are in the medulla oblongata, at the part where the tubercula quadrigemina are attached to it. We are informed that the great mass of the cerebellum and cerebrum are not immediately concerned either in muscular irritation, or in sensation; they appear, however, to be necessary to perception, especially the former, which is also supposed to be the immediate seat of memory and intellect. The effect of removing the

cerebellum was to destroy the voluntary power over the muscles; the animal appeared to retain its volition, but had lost the capacity of exercising it. M. Cuvier speaks in high terms of commendation of the experiments of Fleurens, and it must be confessed, that if the experiments be confirmed, they will lead to very important views respecting the nervous functions."

Formerly much controversy existed upon the question, whether the powers of motion and of sensation are transmitted or furnished by the same nervous filaments.—It was observed that the mobility of a limb was sometimes entirely destroyed, whilst it nevertheless possessed perfect sensibility; and it was therefore very rationally contended, that these two functions could not be connected with one and the same nervous filaments. This conclusion is now fully demonstrated by the recent experiments of Bell and Majendie. These two able physiologists have ascertained, that if the posterior of the two roots by which the spinal nerves originate, be divided, all sensation will be abolished in the parts to which the nerves are distributed, and, on the contrary, that when the anterior roots are cut through, the sensibility will remain, but the power of motion is effectually destroyed. M. Magendie has, as he thinks, ascertained that this separation of the nervous functions extends to the spinal cord, and they are respectively confined to the two separate pillars of which this cerebral prolongation is composed. "From these experiments," says our author, "we gain an analogical argument for the same kind of separation in the brain, and this conjecture would appear to be sanctioned by the experiments of Fleurens and M. Rolando."

The series of experiments lately brought forward by C. Bell, in relation to the functions of the nerves, are highly interesting, and deserve very great attention.—From certain peculiarities of structure and distribution, observable in the nerves, he has arranged them under two divisions, each of which it would appear are subservient to distinct functions in

the animal economy. To the one class of nerves Mr. Bell has given the name of symmetrical or original, and to the other the superadded or irregular nerves.

"The first set, which might, perhaps, be called more appropriately, the general nerves, consist of the fifth pair of the cranial, and all the spinal nerves. They have double roots, one of which is connected with ganglia; they pass laterally to the two halves of the body, and they are distributed to all the muscular parts that are under the control of the will. They appear to be the organs of perception and volition, deriving, as we may conjecture, these two functions from the double roots. These we may regard as that part of the nervous system which serves the purpose of establishing our connexion with the external world."

"Mr. Bell's second set of nerves proceed by single roots from the base of the medulla oblongata, or the parts immediately connected with it; they proceed in a much more irregular manner than the former, and are distributed to all the organs which are concerned, either directly or indirectly, in the function of respiration. From this circumstance they have received the denomination of respiratory nerves, as well as of supperadded or irregular. Their course is designated by this last term, as they pass from one organ to another in the most intricate manner, connecting them together, passing across the general nerves, occasionally uniting with them, and forming the connecting link between the two halves of the body. The nerves are not under the control of the will, and are not capable of exciting perception; they are, therefore, furnished only with the faculty of transmitting the nervous influence, or with what Dr. Philip styles nervous power in opposition to sensorial."*

In the fourth section of this chapter, the author treats of *the connexion* between the nervous and muscular systems.

*"See Bell in Philosoph. Trans. for 1821, p. 398, et seq. Also, Philos. Trans. for 1822, p. 284, et seq; and Shaw, in Quart. Journal, v. xiii, p. 120; and Med. Chir. Trans. v. xii., p. 104: Lon. Med. Phys. Journal, v. xlviii., p. 343 and 457; v. xlix. p. 449."

After the distinct characters of contractility and sensibility were pointed out, and it was admitted that the former gave rise to motion and the latter to sensation, a question arose whether motion could exist without sensation; and this point "gave rise to one of the most animated controversies that ever took place in physiology." "The point in dispute," says our author, "may be thus stated; when a stimulant acts upon a muscular fibre, so as to produce contraction, does it act immediately upon the fibre itself, or does it not always act through the intervention of a nerve." Haller stood at the head of those who advocated the affirmative, and Whytt, his most powerful and zealous opponent, defended the contrary doctrine. The principal facts adduced in support of the Hallerian doctrine on this subject, are: 1,—Many parts are very contractile, although they seem to possess scarcely any nerves and sensibility, as, for instance, the heart. 2,—The muscular parts remain contractile long after they are separated from the body, and their communication with the brain is cut off. 3,—Fœtuses have been born without heads, but have nevertheless evinced a power of motion. 4,—The analogical support this doctrine receives from the constitution of the lower classes of animals, "such as the *actiniae*, and some of the larger of Zoophytes, which have contractile power without the least trace of a nervous system." 5,—It receives support from the fact, that some of the contractile organs are formed in the fœtus, as the heart, before the brain is perceptible. In opposition to these arguments, others, perhaps equally powerful, have been adduced by the neurologists. The most powerful of the arguments urged against the doctrine of Haller is the fact, "that exactly the same effects are produced, whether the stimulant be applied to fibres themselves, or to the nerve that is distributed to them." The experiments recently made with the galvanic influence, lead to the same conclusion.

"When a muscle is completely separated from the body, except by the intervention of a nerve, contractions are excited by

transmitting the electric influence through the nerve, and it is always found that if the trunk of a nerve form part of a circuit, it is not the muscles in the neighbourhood of the nerves that are excited, but those to which the nerve is ultimately distributed, however distant they may be. By reversing the nature of the experiment, the reverse effect is produced. If, instead of applying a stimulant, we make use of a sedative, such as opium or laurel-water, and immerse the nerve in it, the muscles to which the nerve is sent, lose their contractility as entirely as if the sedative had been applied to the muscular fibres themselves."

The circumstance, also, that muscular action is produced by mental operations, is strongly against the Hallerian doctrine. Notwithstanding these powerful facts in opposition to this doctrine, the late experiments of Dr. Philip afford, as our author believes, the most direct confirmation of its truth. The experiments of this ingenious physiologist, on this curious subject, "consisted in employing the corresponding muscles of the two extremities of an animal, the nerves of one of which were divided while those of the other remained entire. Both the sets of muscles were then thrown into strong contractions by the direct application of a stimulant, when it was found that the extremity in which the nerves were left entire, lost its contractile power as soon, or sooner, than that in which the nerves were divided." From this experiment Dr. Philip concludes, and justly, as our author thinks, that contractility is an inherent power of the muscular fibre, "and does not depend on any thing which is conveyed to them through the media of the nerves."

Of the Circulation.—Having described the principal ingredients which enter into the composition of the animal body, and the two general properties which distinguish the animal functions,—sensibility and contractility, the author goes on to consider those functions which are exercised by the organs of the body, "and which all consist either in motions brought about by the contraction of the muscular fibres, in sensations produced by the appropriate actions of the nervous

system, or in peculiar affections of certain parts of this system connected with the various intellectual operations." The second and third sections on this head, embrace a succinct description of the heart and its appendages, and the history of the discovery of the circulation. In this place, also, he introduces some interesting observations on the transfusion of blood, and gives a copious reference to cases in which the operation has been practised.—In section fourth, he treats of the mechanism of the heart; and in section fifth, he enters into a full account of the properties and actions of this organ. The sixth section is taken up with the consideration of the action and properties of the blood-vessels; and sections seventh and eighth, with an account of the efficient causes of the circulation, and of the nature, phenomena, and cause, of inflammation. The sixth and last chapter of this volume is devoted to the physical, chemical, and animal properties of the blood. We have not room to enter into a proper analysis of these chapters, but we can recommend them to the attention of the reader, as exhibiting in a clear and methodical manner, a full view of the present state of our knowledge upon the topics which they embrace. In conclusion, we again remark, that as a text book for the teacher, or as a manual for the student, we regard this work as decidedly the best that has yet appeared in the English language. E.

ART. II.—*Observations on the Diseases of Females, which are attended by discharges; illustrated by copper-plates of the diseases, &c.* By CHARLES MANSFIELD CLARKE, Member of the Royal College of Surgeons, Surgeon to the Queen's Lying-in Hospital, and Lecturer on Midwifery in London. Philadelphia, H. C. Carey & I. Lea, 1824. Octavo, p. 222.

WE have not for a long time read a work which has afforded us more information than the present one. It is written in plain and perspicuous language, and embraces a great deal of important matter on a variety of the most interesting diseases that fall under the notice of the medical practition-

er. On the symptomatology and distinctive characters of the sexual diseases which form the subject of this work, the author has presented his readers with much authentic and valuable information. The plates which accompany his descriptions of the diseases, are well executed, and aid very materially in forming a proper conception of the appearance and nature of the structural derangements belonging to these maladies. With these general expressions of our opinion as to the merits of the work, we proceed to give such an analysis of its contents, as will enable our readers, in some degree, to judge for themselves concerning its character and value.

The first chapter contains a short account of the *secretions* of the sexual organs of females, introductory to the consideration of the diseases of these parts. In Chap. II., the author treats of the *Profluvium Vaginale*, or those morbid discharges from the vagina which have been described under the various denominations of fluor-albus, leucorhæa, fluor muliebris, &c. No attempt, he observes, should be made to arrest these discharges when they arise from an inflammatory action of the mucous membrane of the vagina, until the inflammation is subdued; for the discharge itself has a tendency to moderate the inflammatory action upon which it depends, and it would in such cases be "as injurious to restrain the discharge from the parts, as it would be to put an end to the natural salivation of a teething child, whilst the determination of blood to the head continues." There are five varieties of vaginal discharges; the transparent mucous discharge, the white mucous discharge, the watery discharge, the purulent, and the sanguineous. This variety in the character of the discharges, forms the foundation for the classification of the diseases treated of in this work. In the third chapter, the author makes some interesting observations on sexual diseases, and on the necessity and mode of making an examination per vaginam. He strongly urges the necessity of such an

examination in diseases of this kind. "It is quite impossible, in many complaints, to depend on a mere history of the symptoms given by the patient, and daily experience demonstrates the futility, and in some cases the injury, arising to patients from medicines prescribed upon such vague information."

Chap. IV. *On Sympathies.*—A concise reference is here made to the various sympathies of the animal system both in its healthy and morbid state. Besides the stomach, there is, perhaps, no organ that has such an extensive circle of sympathies as the uterus.

Chap. V.—In this chapter the author describes those diseases which are attended *by a mucous discharge from the vagina.* Some of these complaints consist of a displacement of parts: as procidentia of the uterus, bladder, vagina, and inversio uteri.

The uterus often descends very slowly, and many months, or even years, may elapse before it has sunk down very low. Neither the violence nor number of the symptoms are in proportion to the degree of the descent of the uterus; "for when it has sunk but little, the round ligaments are put upon the stretch, and the symptoms, also, which depend upon sympathy, attend the minor cases of the complaint." The most common cause of this complaint, says Dr. C., is the long continued erect posture at an early period after delivery, or after abortion. The author describes the symptoms of the disease minutely. The sympathetic affections are often very distressing; the stomach, especially, suffers greatly from its sympathy with the uterus in this complaint. The appetite is disordered, or entirely lost; flatulence, producing a distressing sense of distention of the bowels, attend; "the spirits flag, every employment becomes irksome, and life itself is considered as scarcely desirable. The diaphragm is sometimes affected with spasm, and hiccough is produced." When the uterus sinks so low as to become an external tumour, the surface of the protruded part ceases to secrete, al-

though whilst within the vagina its secretions were copious. This circumstance explains the fact, that in those cases where the uterus remains within the os externum, there is usually much more general debility than in those where the tumour is external. When a tumour of this kind is returned into the cavity of the vagina, its surface again begins to secrete a mucous fluid. Procidentia uteri is commonly easily relieved when attended to in its early stages. "If a woman having this disease should again become pregnant, and will consent, after her labour, to a confinement of some weeks in a horizontal position, the parts may regain their tone so as to render any artificial assistance unnecessary."

In the cure of this disease it is of importance to give tone to the vagina, by which its diameter will be diminished, and the descent of the tumour prevented: "it is also important to lessen the quantity of the mucous secreted, 1st, because it becomes a cause of weakness; and 2ndly, because the passage of a warm gelatinous fluid over the parts will relax them still more." The employment of cold water, both externally and in the form of injections, will often contribute very considerably to the production of these beneficial changes.

"In procidentia uteri, cold water ought to be applied to the female parts, to the belly, and to the back, by means of a sponge, three or four times a-day; and the water for this purpose should be used as soon as it has been drawn from the spring. The water may be rendered still colder by the addition of ice or salt. Cold water may also be thrown into the vagina by means of a syringe, or a piece of ice may be introduced into the vagina, and suffered to dissolve there. In very slight cases of the disease, when the symptoms are just beginning, and when they are known to proceed from the causes which have been mentioned, they will be removed by attention to these rules, assisted by a horizontal posture. Whenever it is found necessary to inject fluids into the vagina, and important that they should remain there for any time, the operation should be performed when the woman is in a recumbent position; and if a pillow is previously placed under

the hips, in order to raise them a little, the fluid will be less likely to escape." p. 38.

Astringent injections are in general very serviceable. They tend, at once, to diminish the diameter of the vagina, and to lessen the secretions. The author observes, that the different mineral and vegetable articles of this class of remedies are not equally applicable to every case. Where there is much relaxation of the orifices of mucous glands, the sulphate of zinc, nitrate of silver, sulphate of copper, and the nitric and sulphuric acids are much more serviceable than in cases where "tone is required to be given to muscular fibres, as is the case in procidentia." The acetate of lead is seldom useful, unless inflammation of the vagina attends. Alum is one of the best astringents in this complaint. "A mixture of alum, and sulphate of zinc, will sometimes answer better than either of these substances employed alone." Among the vegetable astringents, the oak bark and galls are decidedly the best. A solution of alum, or the sulphates of copper and zinc, in a decoction of oak bark, forms, perhaps, the most useful injection of this kind.

Injections of this kind should be used three or four times daily. In addition to the local treatment, considerable advantage will be derived from the exhibition of tonics internally. Bitters, in combination with astringents, act more beneficially in this disease, than bitters alone. We have been in the habit of employing alum in union with ipecacuanha in cases of this affection; and the effects of this combination have generally been decidedly beneficial in our practice. Six grains of powdered alum, with one and a half, or two grains of ipecacuanha, may be given three times daily. Generally, it keeps the bowels in a soluble state, and we have uniformly found it to diminish the discharge, as well as the procidentia. Dr. Clarke thinks that the cinchona, combining astringency with bitterness, is to be preferred to all other remedies. Where the stomach is much disordered, pure bitters,

however, answer better than bitters and astringents combined. It is of the utmost consequence, in this affection, to attend to the state of the bowels. Too much looseness and too much costiveness are alike injurious.

After all our efforts to relieve the disease by medicinal agents, we are frequently disappointed in effecting a cure. In such cases, the introduction of a pessary into the vagina, becomes necessary, and the relief obtained by supporting the uterus in this way, is, in general, very considerable. An oval or circular pessary will answer very well where the degree of the procidentia is not very great. The diameter of the pessary should not in general be more than two and a half inches, for one of a larger size might do much harm by compressing the urethra and rectum. It is of much importance to remove the pessary occasionally, for the purpose of cleansing it, and it should also be changed from time to time, for a smaller one.

" In consequence of omitting to withdraw the pessary," says Dr. C., " the surface of it has sometimes become coated with gritty matter, which has brought on irritation, inflammation, and ulceration, of the neighbouring parts. Instances too have occurred, where parts of the instrument have been destroyed by a spontaneous change taking place in it, and angular portions of it have been left, which have produced similar bad effects." p. 46.

The author relates the case of a lady seventy-five years of age, who suffered with much pain in the vagina, attended with offensive discharges: " the pain was constant, and was compared to that produced by a sharp instrument." On examination per vaginam, he found that a pessary which had been introduced thirty-five years before, " had lost its original form, being corroded in several places, and that many irregular portions of it were left, which pressed upon the vagina, and had produced ulceration of its internal surface."

In those cases where the uterus has passed out of the cavity of the vagina, it should, if practicable, be returned and re-

tained in the vagina by means of a pessary. The reduction, however, of prolapsed uterus, when it has proceeded to this extent, is in general very difficult, and where there is pain and inflammation of the tumour it must not be attempted at all.

"In almost all the cases in which the degree of the disease is so considerable, every pessary which can be introduced will be forced away by the lightest efforts of the woman: even the globular pessary (which is the best) will not be retained, neither can it be kept in the vagina by any common bandage. But by the following contrivance the globular pessary may be kept in the vagina. In the first place, a pessary is to be chosen of the size which the case requires, and a small slip of brass is to be attached to it by its two ends, leaving a space between the instrument and the centre of the piece of brass. A belt of leather long enough to go round the patients' body, is also to be prepared: to the centre of which behind, a brass wire, as thick as a common quill, is to be attached by a screw. This wire is now to be properly bent; and the pessary being introduced into the vagina, the wire is to be passed between the pessary and the piece of brass attached to the fore part of the circular strap. The reduced parts are by this means supported by a pessary, and this is kept in its place by the unyielding piece of metal." p. 49.

Chap. VIII. *Procidentia vesicæ.*—A prolapsus of the bladder has been frequently confounded with procidentia uteri. Its characteristic symptoms, observes our author, have not been pointed out by any author with which he is acquainted. The majority of the cases of this affection which had come under his notice, were attended with violent coughs. The patient complains of a bearing down; this sensation is, however, not so great as in procidentia uteri. She is more uncomfortable when the bladder contains a considerable portion of urine; for in this case the tumour is much increased in size and weight, and vice versa. "The peculiar symptom which marks this complaint, is a pain referred to the navel, with a sense of tightness there. This pain is the greates

when the bladder contains the largest quantity of urine; and as it parts with its contents, the uneasiness diminishes, till at last, when it is empty, or nearly so, the symptom goes off altogether." On examination per vaginam, a tumour is found in the vagina, situated between the os pubis before, and the uterus behind, which a practitioner can hardly fail to discover is formed by a fluid.

"The distinguishing mark between procidentia vesicæ and procidentia uteri, is the absence of those stomach symptoms which attend the latter; for although the stomach sympathises with the bladder under many states of disease arising from altered structure or disordered actions, it is by no means so frequently affected by disorder of the bladder, as by that of the uterus, and very rarely, if ever, is affected by mere displacement of the bladder. A distinctive mark occurs on examination. In procidentia uteri, an opening is perceptible at the lower part of the tumour, which is not the case in procidentia vesicæ." p. 52.

This complaint may be remedied by the use of a pessary. The hollow pessary of a globular form is the best. Astringent injections, also, are of essential service. The bowels must be kept in a relaxed state, and the urine must never be suffered to accumulate in the bladder. The patient must avoid lifting heavy weights.

Chap. IX. *Procidentia vaginæ.*—Chap. X. *Inversio uteri.*—We pass over these chapters as containing nothing of any particular interest that may not be found in the common works on midwifery.

In Chap. XI. the author considers those mucous discharges from the vagina, which depend on an increased determination of blood to the sexual organs. The circumstances which have an especial tendency to give rise to such local determinations, are hæmorrhoids, ascarides, carcinoma recti, carcinoma uteri, polypus uteri, fleshy tubercle of the uterus, watery tumours arising from the vestibulum, vascular tumour of the orifice of the meatus urinarius, and thickening of the cellular mem-

brane surrounding the urethra throughout its whole extent, accompanied by a varicose state of the vessels of the part.

Each of these affections is treated of under its proper head, at considerable length; but we shall here notice only a few of those which appear to us the most interesting.

Chap. XIII. *Carcinoma recti.*—This disease does not occur frequently. It is always attended with a mucous discharge from the vagina. It has been sometimes mistaken for stricture of the rectum, and the consequent treatment has, of course, been injurious. In carcinoma of the rectum, the pain is greatly increased by the passage of the fæces, and "the pain is such as the patient would feel upon the rough handling of any external tumour of a similar character." In common stricture, on the contrary, the pain is much less severe and acute; being the consequence "merely of a resistance offered to the passage of the contents of the rectum." There is also usually much more constitutional disorder in carcinoma than in stricture. Carcinoma recti is commonly attended with great emaciation, in consequence, chiefly, as the author supposes, of the mesenteric glands having become diseased in a similar manner; although the pain, irritation, and quantity of the vaginal discharge, must contribute to the same effect. No medical treatment, in the opinion of the author, is adequate to the cure of this distressing complaint. The only mode by which a cure can be effected, is excision. Considerable aleviation may, however, be obtained from a proper attention to the diet, which should be light and digestible, and by keeping the bowels in a gently relaxed state. The author says nothing concerning the employment of the narcotic remedies in this affection. We saw a case of this disease some years ago, in which large doses of hyoscyamus afforded unequivocal relief, although the disease, finally, proved fatal.

Carcinoma uteri.—"By carcinoma uteri," says Dr. C., "is meant that disease where there is a tumour near to, or a thickening of the cervix of the uterus, which tumour or

thickening is disposed to ulcerate." The diseases which Dr. Baillie describes under the name of scirrhus uteri, and tubercle of the uterus, are treated of together by Dr. Clarke, under the title of "fleshy tubercle of the uterus."

"The disease (carcinoma) attacks only, in the first instance, the cervix of the uterus. All other tumours, although hard in their texture (scirrhous as they have been called) are of a different character, have different symptoms and terminations. In the dead body they may have some resemblance to carcinoma, but they are never found ulcerated. Inflammation may take place in, or near them, and matter may form; but when the first takes place they suppurate from their centre, and not from their surface: and when they appear to ulcerate upon the surface, it will probably be found that the ulceration is confined to the parts in the immediate neighbourhood, upon which pressure has been made by the tumour itself.

"Two varieties of this disease are to be observed in the early stage. 1.—There is a firm tumour of a rounded form, springing from the surface of the cervix uteri, or imbedded in it, whilst the other parts of the uterus are perfectly healthy, except that its parieties are thickened as the disease advances, and that its cavity becomes larger than that of a healthy unimpregnated uterus. 2.—Instead of a distinct tumour, the whole of the cervix of the uterus becomes larger and harder; and if this thickened part is examined by cutting into it, it puts on the same appearance which a regular carcinomatous tumour possesses. The two cases proceed differently. In addition to the usual symptoms of carcinoma, there will sometimes be found in the first variety of the disease, some mechanical symptoms, depending on the pressure made by the tumour upon the neighbouring parts; which symptoms will be more or less severe, according to the size and situation of the tumour itself. In the second variety of the disease, these symptoms do not exist; because the carcinomatous thickening of the cervix uteri rarely acquires a sufficient size to produce them." p. 79–80.

Symptoms.—The patient has a sense of weight in the vagina, attended with a mucous discharge, which is occasionally tinged with blood, especially when the diet taken has been

stimulating. Pure blood sometimes comes away after active exercise. So long as the discharge is moderate, the disease advances very slowly, and produces not particular inconvenience. The menses become irregular and more profuse. No great inconvenience is, in general, felt from the mechanical pressure of the tumour; for its size is not often so great as to become a source of irritation from this cause. Œdema of the feet and legs commonly attend. There is not often any difficulty in passing the urine, but strangury is almost constantly present. A mucous discharge comes from the bladder. "This latter symptom," says Dr. C., "has often led to a mistaken idea of the nature of the disease, and in some instances the erroneous opinion has been strengthened by another symptom which attends both diseases, viz, *urticaria* or nettlerash." Connected with this disease, there are also frequently symptoms denoting considerable weakness of the digestive organs, such as cardialgia, acidity, flatulency, &c.; and these symptoms are sometimes attended with hysterical symptoms. On examination if the disease be carcinoma, "the cervix of the uterus will either be found thickened, and with a resisting feel resembling that of a gristle; or a distinct tumour will be perceived arising from some part of the cervix uteri, the other parts remaining healthy. In either case, pressure on the diseased part produces pain of a lancinating kind."

Treatment.—As we are not as yet acquainted with any mode of treatment except, perhaps, excision, by which the disease may be radically cured, all that remains for us to do is to palliate its symptoms, and to impede, in some degree, its progress. With this view, it is of much consequence to attend to the state of the general system,—to diminish the mass of the blood where there is plethora,—to keep the bowels in a duly relaxed condition,—to remove congestions of blood in the pelvic viscera, by topical bleedings,—and to direct our patient to use a mild and digestible diet, and to avoid every thing which has a tendency to fatigue and heat the system. No attempt should be made to stop

the discharge, but the parts should be frequently washed with tepid water, to remove the irritating secretions from the vagina. "The heat of the water should be accurately regulated;" if it is too cold it will give too great a check to the secretions; and if too warm, there will be danger of its exciting too much the local vessels. The temperature may vary from 86° to 94° of Fahrenheit, and the water should be injected several times daily. Warm clothing is recommended by the author; 1st, because if there is much blood upon the surface of the body, less will circulate in the interior vessels: and 2ndly, because the chance of inflammatory action being produced by any sudden change of temperature to which the body may be exposed, will be diminished, and the uterus will be less likely to suffer." The urticaria which sometimes attends this disease, is generally increased by a vegetable diet. Dr. C. has not obtained any advantage in the relief of this symptom from external applications; and all those internal remedies which cool and allay irritation, will be found injurious, or at least useless.

It is chiefly important, in the treatment of this disease, to attend to the state of the stomach. The bowels must be kept in a relaxed condition, and some light bitter infusion administered, to which a few grains of soda may be added. The following case is related by the author, in illustration of the importance of attending to the state of the stomach in diseases of the uterus, "which are disposed to become active."

"An unmarried lady, about thirty years of age, had an enlarged uterus, in which, at different times, inflammation had taken place, which was subdued by local bleeding, purging, abstemiousness, and quiet. Some time after she had pursued this plan in the country, she came to the house of her father, in London, and was attacked with cardialgia and urticaria to a very great degree. The skin in many parts of the body was attacked by the latter disease, but especially the face and the lower part of the abdomen. Considerable itching was present, accompanied by irritability of the whole system. The disease of the uterus,

also, which had been in a quiet state during several months, returned with great violence. Local bleeding in some degree lessened the pain: purging with neutral salts increased the urticaria. Nearly all vegetable food was abstained from: she took nothing but soda water and mint tea for beverage, with a little thin dry toast for food. Once in four hours a draught was exhibited, consisting of carbonate of magnesia, compound spirit of ammonia, and an infusion of dill seed. Under this plan all the symptoms subsided, and the uterine disease, at that time, gave no farther alarm. For some months this lady continued well; but having, at supper, eaten freely of fruit pye, and drunk at the same time some sweet wine, the urticaria returned in the night, and with it the pain in the region of the uterus. Some bitter infusion, with rhubarb and volatile alkali, was now given, and soda water for common drink; and again all was put to rights. She now carefully avoids such food as is likely readily to ferment, and watching the first attack of heart-burn, has not for some time been visited by her troublesome complaint." p. 87.

The author has seen no good effects from the use of the rust of iron, in this disease,—a preparation which has been strongly recommended in similar affections situated externally. The muriate of gold has lately been given in this disease, and, as it is alleged, with great advantage.* We have ourselves prescribed it in a case of this kind, with evident advantage, but as the case is still under treatment, we cannot say what degree of relief may be ultimately derived from it. Where the disease has proceeded so far as to become ulcerated, we are informed by an able practitioner of this city, that injections into the vagina of Fowler's solution diluted with water, have been decidedly beneficial.

In the seventeenth chapter, the author treats of the "*Fleshy tubercle of the uterus.*"—This disease is described as consisting of a firm whitish tumour, situated "sometimes upon the surface of the uterus, between the muscular and peritoneal

* Neil.

coat, sometimes projecting into the cavity of the uterus, and occasionally imbedded in its substance." There are frequently several of these tumours, and they are found to vary in size from that of a pea, to that of a child's head. When the tumour is large, the texture is not so firm as it is in such as are small. It seems to be made up of distinct parts, connected by a dense cellular membrane, "the diseased tumour itself being opake, and the connecting membrane more or less transparent." Coloured injections forced into the uterine vessels, do not pass into the tumours. The tumours constituting this disease, are generally situated on the fundus of the uterus, and at a distance from its cervix. These tumours have no tendency to ulcerate, or to enter into suppuration; ulceration and suppuration may, however, occur in the surrounding cellular substance. It is sometimes connected with corroding ulcers of the os uteri, although it does not appear that there is any direct connection between them. There is almost always an increased discharge of mucous from the vagina in this affection.

"The early symptoms are a frequent disposition to make water, and empty the rectum. Cramp in one or both the lower extremities, œdema of one or both feet, are symptoms attending those cases where the sciatic nerve or trunks of the absorbents are pressed upon. When the tumour becomes so large as to fill the cavity of the pelvis, there may be great difficulty in passing the fæces, and a total inability of emptying the bladder. The weight of the tumour, and its pressure upon the parts at the lower aperture of the pelvis, will occasion a sense of bearing down; and this will not be so much relieved by the horizontal posture, as in simple cases of procidentia arising from relaxation. If an examination be made, a hard, large, resisting tumour will be felt; but the os uteri will have undergone no change. It will not gape as in carcinoma, neither will the patient complain of pain when the tumour is pressed upon. The constitution is seldom affected by this disease, and when it is so it is merely from the effects arising out of pressure made by the tumour upon other parts."

Chap. XVIII. *Verrucæ, or warty tumours arising from the vestibulum.*—A mucous discharge from the vagina attends these verrucæ when they are large. They are generally quite insensible; they are sometimes found to grow on the labia, the nymphæ, the vestibulum and the carunculæ myrtiformes. They often arise in parts which were recently the seat of chancres, "but it is not necessary to the formation of these tumours, that the part should have been the seat of any syphilitic complaint, for they may arise in parts which have never been so affected." These excrescences often excite an excessively tormenting irritation in the parts. The tumours may be removed by ligature, or with a pair of scissors; the hæmorrhage is readily restrained by the application of the lunar caustic. They may also sometimes be removed by stimulating applications, "such as solutions of argenti nitras, hydrargyri murias, cupri sulphas, ammoniæ carbonas, &c."

Chap. XIX. *Vascular tumour of the orifice of the meatus urinarius.*—This disease is attended with great pain, and generally occasions much alarm and anxiety to the patient. The tumour arises from the natural projection around the orifice of the urethra; its texture is generally not firm, and it is of a florid colour, resembling arterial blood; its surface has a granulated appearance, and "*it is exquisitely tender to the touch.*" On examining it closely, it presents the appearance of shooting from the inside of the urethra; it is seldom large; "its attachment is so slight, and its form so moveable, that it appears like a detached body lying upon the parts." This tumour, when injured, pours out a florid blood. The author recommends the removal of the tumour by ligature, or by the scissors and caustic. A case of this kind came under our care during the preceding year, in an unmarried woman about forty years of age, which was, at times, attended with the most violent piercing pains in the tumour. After trying a great variety of means ineffectually, the patient was at last completely relieved by the application of the unguentum citrinum.

Chap. XX. A *thickening of the cellular membrane surrounding the urethra throughout its whole extent, accompanied by a varicose state of the vessels of the part.*—Pain and difficulty from the sexual intercourse, sometimes lead to a knowledge of the existence of this disease. "On examination, a bulbous tumour will be found situated behind the pubis," and some degree of pain will be experienced if pressure is made on it. There is always a mucous discharge, probably, both from the vagina and the urethra. When the patient presses down, "the diseased parts come to view, putting on the appearance of a tumour," having large blood-vessels ramifying on its surface. The patient is much harassed by a frequent desire to make water. Warm applications are eventually injurious, although they may afford temporary relief. "The most speedy and effectual mode of relieving the patient is by emptying the vessels, either by puncturing them with a lancet, or by the application of leeches." When the vessels are emptied, the parts should be washed with cold lotions composed of a solution of the acetate of lead; and after a few days, a weak solution of muriate of ammonia, or sulphate of zinc, will be useful. "Pressure is serviceable, and may be made by introducing a piece of wax candle, or a small roll of linen."

Chap. XXI. *On the transparent mucous discharge from the vagina, not accompanied by any alteration of structure of the sexual organs.*—Under this head the author considers the two distinct and very dissimilar diseases of a "*transparent mucous discharge arising from increased action of the vessels,*" and "*transparent mucous discharge depending on debility.*" The former of these complaints is apt to occur in plethoric and corpulent women, who lead a sedentary life, and indulge in the pleasures of the table, and "who are generally weak, although they may have the appearance of strength." In cases of this kind, a slow enlargement of the liver usually takes place.

"The vaginal discharge," says Dr. C., "increases in quantity, the fluid of menstruation, also, is secreted more plentifully, and the intervals between the periods are generally shorter than natural: and these symptoms, for the most part, lead the patient to apply for professional advice. Upon inquiry it will be found, that fits of giddiness and of sleepiness have attacked the woman; that there has been pain in the head, perhaps indistinct vision, or a sensation of sparks when they are closed. Many years may elapse before any danger is apprehended; and then all at once the woman may be attacked by a fit of appoplexy, or some great internal hæmorrhage; or she may gradually become weaker and dropsical, and at length die."

The mucous discharge is diminished immediately after each period of menstruation. If the discharge is checked by local astringent applications, without "employing any means of unloading the blood-vessels, the violence of the symptoms generally increases." In examining the bodies of those who have died of this complaint, the author has found the uterus somewhat enlarged; and the liver, in some instances, increased to double its size, and uniformly harder than a healthy liver." The treatment consists in lessening the general and local plethora, both by directly depletory measures, and by an abstemious and cooling regimen,—in restoring the healthy action of the liver,—and, finally, in moderating the vaginal discharge. After the plethoric state of the system has been removed, weak astringent solutions may be thrown into the vagina, in order to moderate the discharge. Whilst the plethora continues, injections of warm water alone should be employed. In cases where the transparent mucous discharge depends on a mere local increased action of the parts, general remedies are seldom necessary. "Leeches, or cupping glasses applied to the lower part of the abdomen, or to the back," together with weak astringent injections, will, in general, answer well in such cases.

As the liver, according to our author, is so often the seat of morbid action in this complaint, we are surprised that he has

not said any thing concerning the use of mercurial remedies. —We have a case of this disease under treatment at this time, in which there is evident hepatic derangement, and in which the blue pill given every evening, in the dose of three grains, and the occasional interposition of a saline laxative, produce manifestly beneficial effects. We are inclined to think that the complaint in question is often wholly dependent on a torpor of the circulation, not only in the hepatic system, but also of the whole portal circle of vessels. It is well known that such a state of the liver and portal circulation has a particular tendency to produce hæmorrhoidal affections, or, in other words, to produce a congestion of blood in the pelvic viscera. It would appear quite probable, therefore, that a similar state, determining a congestion in the uterine vessels, is capable of producing an increased secretion of the natural mucous discharge from the vagina, and that, consequently, the disease under consideration is most commonly symptomatic only of a primary derangement in the hepatic system. Indeed, as we have already said, the author evidently lays too much stress on the discharges attending the complaints which form the subject of his work. These discharges are always to be considered as mere symptoms; and they are by no means always among the most important which belong to this class of maladies.

Chap. XXII. *On the transparent mucous discharge depending upon debility.*—The discharge in this disease varies much both in consistence and quantity. It is usually attended with pain in the back. The author thus describes the concomitant symptoms and consequences of the disease.

"The continued drain from the system increases the original weakness; and the quantity of blood remaining, is by degrees so much reduced, that the surface of the body becomes every day paler, till at length the cutaneous vessels are completely emptied of their contents, and at this time the skin assumes an appearance resembling that of a dead body. The colour of the sebaceous glands of the skin is evident through the cuticle; so that to

the paleness of the skin is superadded an appearance of yellowness, which is not the effect of absorption of bile, for the urine will be found clear and colourless, and the tunica sclerotica of the eye will retain its pearl-coloured appearance. The cellular membrane becomes filled with fluid, and the integuments acquire a doughy look and feel. The legs and feet swell towards night, and in the morning this swelling subsides, and the face becomes puffed; a shortness of breathing succeeds, which is increased by the horizontal posture, and is rendered most distressing when the patient is going up an ascent, or endeavours to read aloud. Violent palpitations of the heart occasionally give the woman great uneasiness; and this symptom sometimes increases to so considerable a degree, that the action of the heart may be heard by a by-stander. During the continuance of these palpitations, the patient becomes very faint, and often considers herself to be dying."

The hands and feet are generally constantly cold; the pulse is weak and quick; dyspeptic symptoms prevail; costiveness almost universally attends the disease; and finally hectic fever, with extreme difficulty of breathing, comes on. Formidable as these symptoms appear, they are, notwithstanding, frequently remediable by a judicious treatment.

Treatment.—It is of the utmost importance in the treatment of this disease, that the patient be placed in a dry and healthy situation. In the damp atmosphere of Holland the disease is said to be very common. "The author has repeatedly seen the complaint attended by the worst symptoms in women who live in damp situations, and in the crowded parts of London, in whom they have quickly disappeared upon a removal to a more healthy spot." Gentle exercise should be recommended. The food must be light and nourishing. Tonics should be administered; it will be best to begin with the light bitters, with a few grains of carbonate of ammonia. After the stomach has acquired some strength, instead of the ammonia, the tincture of muriate of iron will be found very serviceable. A combination of steel, myrrh, and alkali, is a valuable remedy, but it cannot be given with advantage un-

til the stomach has acquired some degree of tone by the previous use of bitters, cinchona, &c. Auxilliary to these curative means, astringent injections are highly useful. A solution of alum, or sulphate of zinc, answers this purpose excellently. Cold sea-bathing is also a valuable aid.

Chap. XXIII. *White mucous discharge.*—The author thus describes this variety of vaginal discharge. "It is opaque and of a perfectly white colour; resembling in consistence a mixture of starch and water, made without heat, or thin cream; it is easily washed from the finger after examination, and it is capable of being diffused through water, rendering it turbid." Occasionally this discharge is found to possess the tenacity of glue, but it is never profuse. Generally there are but few symptoms accompanying the discharge; sometimes, however, says Dr. C., the patient experiences "an uneasy sensation in the back and lower part of the abdomen, which gradually becomes converted into pain, and this pain is increased by whatever calls the parts concerned into action," such as riding or pressure from the expulsion of hard fæces, &c. Irritation of the neck of the bladder, and of the rectum, is a frequent symptom. The constitution seldom suffers in this complaint. On examination, the vagina and external parts are not found to possess a morbid degree of sensibility; but the cervix uteri, when touched, is painful, giving a sensation "which has been compared to that which has been experienced upon the passage of an evacuation from the rectum." The cervix uteri is, however, not altered in structure; there is no thickening or peculiar enlargement, nor ulceration. The author states that he has no hesitation in saying, that wherever the white mucous discharge is present, a tenderness of the cervix uteri will be found to exist on examination. The neck of the uterus is sometimes exceedingly tender to the touch, without the neighbouring parts possessing at the same time an augmented degree of sensibility. In such cases the uterus is generally very low. In some instances, however, the action of the adjoining parts is in a state of morbid irritation.

The author relates an interesting case in point. In some instances the pain in the back and the lower part of the abdomen is at times exceedingly violent. Encysted tumours in the neighbouring parts are sometimes found connected with this disease. The author relates several cases of this kind. Although the constitution does not generally sympathise much with the local irritation, yet the author has met with cases where a great deal of constitutional disturbance was present.

Treatment.—The antiphlogistic plan of cure, as the author observes, is manifestly indicated in this affection. Bleeding, either general or topical, is a primary curative means. The hip-bath also should be used, of the temperature of about 90°, together with fomentations to the back and the lower part of the abdomen, and injections of tepid water into the vagina. A soluble state of the bowels is essential in the treatment of this malady; for this purpose the patient should use, as often as may be necessary, small doses of sulphate of magnesia, or where the habit is languid, Ol. Ricini. Some diaphoretic and anodyne medicine should be exhibited every evening. The author recommends the following composition for this purpose: ℞ Pulv. ipeca. compos. gr. v. P. camphoræ gr. iii. confect. rosar. gr. iii. ℳ. dived. in pul. tres omni nocte sumendi cum hoc haustu. ℞. Succ: Limon: ℥ss. Ammon. carbonat. gr. xv. syrup, cort. aurant ℥j. aq. menth sativ. ℥jss ℳ. fiat haustus. When there is much strangury, opium should be given in large doses. It is not often necessary to confine the patient to bed.

The author says nothing concerning the use of astringent injections, in the treatment of this disease. That injections of this kind will frequently produce injury in these affections, there can be no doubt. It appears to us, however, that our author's apprehensions are much too great in relation to this point; and that in the present variety of vaginal discharge especially, such applications deserve the attention of the practitioner. Judging from our own experience, we should say that very considerable benefit may often be derived in this

complaint from the injection of slightly astringent fluids.—Concomitant with the general treatment already mentioned, we have always directed the use of injections of this kind. A weak decoction of wild cherry-tree bark has appeared to us to answer exceedingly well in the present complaint.

The disease, says the author, which bears the greatest resemblance to the one just noticed, is, *inflammation of the substance of the unimpregnated uterus.* These two affections may, however, be distinguished by the *permanency* of the pain, and by the absence of the white mucous discharge from the vagina, in the latter affection; there is also in this disease an increase of pain produced by pressure above the pubis. Inflammation of the *substance* of the uterus is not of very unfrequent occurrence. Most commonly it is produced by some local violence, and it is sometimes the consequence of marriage. The symptoms, according to our author, are: a constant uneasiness referred to the pelvis, gradually increasing, though seldom becoming intensely severe, but notwithstanding greatly interfering with the comfort of the patient, who complains of pain sometimes at the bottom of the abdomen, and sometimes at the back. Superadded to the permanent pain, violent pains occur by paroxysms with irregular intervals; but these are of short duration." The pulse is not often found to be accelerated or hard, in this complaint; nor is the heat often above the healthy standard. The disease is sometimes of very long continuance, with an increase of the symptoms before each period of menstruation. In the progress of the complaint the catamenia ceases to recur.

Treatment.—General bleeding is seldom of any particular service, unless in cases attended with peritoneal inflammation. Topical bleeding, on the contrary, is highly beneficial. Blood should be abstracted once every ten days, at least. Fomentations, with decoction of anthemis, to which laudanum should be added, are to be repeated twice or thrice daily. The patient should be confined to bed, if the disease prove

obstinate, and antimonials, with a few drops of laudanum, administered. Purging is of essential service.

The author here introduces some interesting observations in relation to the nature and treatment of amenorrhœa. The following remarks on the employment of emmenagogus, are judicious.

"There is a class of medicines (formerly called emmenagogues) which were supposed to be capable of exciting a specific influence upon the uterus; and of these the greater number are either of general or local stimulants. It is evident to common sense, that such medicines cannot be exhibited justifiably in all the variety of cases of obstructed menstruation: even were they capable of effecting what is proposed. On no subject, perhaps, have there been more erroneous notions entertained, or more injurious directions given, than on that of diseased menstruation. Prejudice has occupied the place of science, and a popular nostrum has been exhibited, often without, and sometimes with, the concurrence of the practitioner."

"Cases of suppressed menses having been regarded as arising from debility of the system, or of the blood vessels, it has been too frequent a practice in all cases indiscriminately, to resort to the same supposed means of relief,—to the exhibition of chalybeates, gum resins, irritating purgatives, and cantharides. No diseases admit of being treated more generally. If there are cases of obstructed or suppressed menses, where the fluid is tardily secreted, in consequence of general or local debility, there are many others in which an opposite state of the frame becomes the cause of their production. The reason is obvious: the function of menstruation, like the other functions of the body, is best performed when the system is in health. Now health is not constituted by excess of fullness, or by the performance of violent actions, any more than debility or enfeebled action; consequently, the exhibition of stimulants will not influence this secretion, unless attention be given to the restoration of the general health of the patient, even in cases of debility. Instead, then, of resorting to such measures,—to the employment of the whip and of the spur in such cases, let the morbid peculiarities of the constitution, and the

habits of life of the patient be taken into consideration; let the first be counteracted, the second be improved; let the sanguine have her excess of fullness diminished, let the debilitated have her powers augmented; in short, let the general health be amended, and the functions of health will be restored."

Electricity is recommended by our author as a very useful means of exciting the menstrual secretion. "By means of it," he says, "a great number of cases of amenorrhœa have been cured, when no other means had been successful." It should always be applied in the way of the electric shock; —"sparks are of no service. Several shocks should be passed through the pelvis daily. Electricity, however, can never be used with propriety, until the powers of the system have been restored, and until the general health has been established."

Chap. XXIV. *Watery discharge.*—Under this general head the author considers the three following distinct diseases:—1, Cauliflower excrescence of the os uteri.—2, Hydatids of the uterus.—3, The oozing excrescence of the labia.

1.—*The cauliflower excrescence of the os uteri.*—In this disease the os uteri enlarges; the surface of this enlargement has a granulated feel, and consists of a great number of small projections, resembling the upper surface of the cauliflower. The tumour has but little firmness of structure, and pours out a thin watery fluid, which is characteristic of the disease. It sometimes acquires so large a size as to fill up the whole cavity of the vagina, and to appear externally. If the thin membrane which invests it, is injured in an examination, blood of a florid red appearance is poured out. The excrescence is insensible, no pain being produced by pressing on it. It sometimes arises from a small part of the os uteri, and occasionally its attachment is found to embrace the whole circumference. The increase of the tumour is sometimes very rapid. It appears "to be made up of a congeries of arteries," which ramifying on its surface, pour out a thin aqueous fluid in the most abundant manner.

Symptoms.—The patient at first finds the parts more moist than usual; the discharge increasing, by degrees, so as to become a source of great inconvenience; no pain or fetor, however, attends;—in the progress of the disease, the watery discharge becomes still more and more abundant, mixed occasionally with a little blood, until it is so copious as to require the change of twenty or thirty napkins in the course of a day. The patient becomes weak, pale, and depressed in spirits. The slightest exertion of the body is sometimes sufficient to produce a hæmorrhage from the tumour. Generally after a profuse hæmorrhage, the watery discharge is diminished. In the advanced stages of the disease, the digestive functions become deranged, the abdomen acquires a tympanitic condition, hysterical affections supervene, œdema of the feet, and a puffiness of the eye-lids and face come on. Death, in this disease, is usually the consequence of gradual exhaustion by the watery discharge, and sometimes suddenly by hæmorrhage.

Treatment.—A primary indication in the treatment of this disease, is to diminish the determination of blood to the uterine system, and to lessen the quantity of blood circulating in the vessels of this part. For this purpose local bleeding is manifestly an important means. "But although local bleeding," observes the author, "is so valuable a remedy in many cases, it may, when employed injudiciously, hurry the patient's dissolution. It should not be employed when much œdema of the feet is present, or during the continuance of any symptoms indicating great debility. Neither should bloodletting in any case be carried farther than is just necessary to produce the intended effect; particularly when it is considered that the art is in possession of many other powerful auxiliaries in curbing the progress of this malady." If the patient is strong, and the disease not of very long standing, twelve or fourteen ounces of blood may be abstracted, and this repeated every three or four weeks. Sexual intercourse is to be wholly interdicted. The bowels must be kept in a

relaxed state, so as to prevent straining or pressure on going to stool. This, the author observes, is an important measure in many of the uterine diseases, but in none more important than in the one under consideration. "Fruit taken before breakfast, honey eaten instead of butter, a little manna eaten, with a few blanched almonds, or a tea-spoonful of electuary of cassia taken occasionally, will commonly obviate any inconvenience which may arise from costiveness." Cold water injected into the vagina several times in twenty-four hours, often tends to diminish the tumour. A recumbent posture contributes materially to the comfort and safety of the patient. In this disease very considerable benefit may be derived from the use of astringent injections. In using the syringe, however, great care must be taken lest the tumour be injured, and a hæmorrhage produced. "The common female syringe," says Dr. C., "may be used with less risk, if a handkerchief be previously wrapped round it at the distance of about two inches from its point." The astringents recommended by the author, are, sulphate of zinc, alum, sulphate of copper, galls, and oak bark. In cases where the lining membrane of the vagina is very irritable, a decoction of oak bark is, according to our author, the best astringent for this purpose. The powers of the system must be supported by administering light bitters, muriatic and sulphuric acid. The sulphate of zinc, also, is said, by the author, to be very useful as an internal remedy in this complaint. By the judicious employment of the means that have been mentioned, "nearly every case of the disease," says the author, "may be made tolerable, and perhaps such a change wrought in the size, or the actions of the excrescence, in a few instances, as to remove all the symptoms."

We extract the following case as an example at once of the symptoms and character of the disease, and of the author's mode of treating it.

"A lady, apparently about two and thirty years of age, laboured under a continued profuse watery discharge, mixed occasion-

ally with blood; her constitution appeared greatly weakened, she became very pale and emaciated, and together with a slight degree of swelling of the ankles, she was liable to a great palpitation of the heart, and shortness of breath. As her weakness increased, she sought relief from tonics and a stimulating diet, under which plan the disorder increased. An examination being made, a mass was found to project from the surface of the os uteri, from which a quantity of blood issued when it was pressed by the finger. Syncope took place in consequence of this discharge of blood, although the quantity was very trifling. The tumour had no regular form, and as far as the author could ascertain, the whole of it could have been contained in half a walnut shell. The patient was desired to confine herself strictly to the sofa, to use cold water in a lavish manner to the pelvis, and to throw a strong astringent injection into the vagina; she was directed to give up the use of wine, to live upon farinaceous diet and vegetable jellies, and to loose five ounces of blood from the sacrum by cupping, when she had recovered from the effects of her journey to the author's house.

"Some weeks elapsed before the author again saw the patient; her watery discharge was considerably lessened, and the bloody discharge had entirely ceased: the ankles were no longer swelled, and the general health was improved. The patient was desired to repeat the cupping, and to continue the former system of management. Once in about six weeks or two months, the author has seen the patient, who has followed up the same mode of treatment, occasionally losing some blood from the sacrum by cupping." Two years after the author first saw this patient, she called on him again. She was entirely freed from the watery discharge, and her general health and appearance was so greatly improved, that he hardly knew her. On examination he found the vagina so much contracted by the use of the astringents, that it admitted the finger with difficulty; on carrying the examination farther, no difference could be felt between the os uteri of the patient, and that of a woman in perfect health."

There are cases, however, says the author, in which all medical treatment is unavailing. "Still, even in such in-

stances, the ligature holds out a prospect of relief which has now and then been realized." When the tumour is removed by ligature, cold water should be injected into the vagina, and afterwards a strong decoction of oak bark, in which some alum is dissolved. A solution of nitrate of silver, in the proportion of a grain to an ounce of water, or of sulphate of copper, in the proportion of eighteen grains to twelve ounces, forms an excellent injection in cases of this kind.

The oozing tumour of the Labium.—This is an entirely different affection from the warty tumours of the labia and vestibulum already noticed. The warty tumours are attended with increased *mucous* discharges from the *vagina*, "but in the oozing tumour of the labium," says Dr. C., "the discharge arises from the surface of the tumour, or rather from the interstices in the tumour." The discharge is watery and often very abundant. This tumour projects but little beyond the plane of the surrounding skin, often not more than a line or two, and rarely above one-third of an inch. Its colour is nearly like that of the surrounding skin, and it sometimes extends nearly over the whole surface of the labia. A projection very much resembling this tumour, might be made "by the firm application of a piece of fine netting to an œdematous part during a few seconds, the surface being unequal, consisting of irregular depressions and eminences, from the former of which the fluid oozes."

"In the immediate neighbourhood of the tumour, œdema is occasionally met with, but the tumour itself is not œdematous; soon after the surface of the tumour has been wiped dry, a watery fluid begins to ooze from it, and to form drops, which, having become large, at length run off, and keep the surrounding parts in a state of constant humidity; sometimes soreness and excoriation take place, as upon the upper lip, when the secretion from the nostrils is increased, but the tumour itself is seldom rendered more sensible."

On a superficial examination, says our author, the disease

looks somewhat like that form of erysipelas called shingles; but the projecting parts are solid and contain no fluid. The disease occurs most frequently in fat women; the author has not met with it in young women. The chief inconveniences, according to the author, are, an itching, a preternatural heat in the affected parts, attending with a watery discharge, so copious sometimes, as to annoy and weaken the patient very considerably.

Treatment.—When general debility exists, a nutritious diet, cinchona and the tonic bitters must be administered. Heated rooms and warm seats are to be avoided. External applications often afford considerable relief, but the author has never known a case cured by them. Powdered starch "sprinkled on the parts again and again, so as to form a cake upon them, is a very useful remedy." A horizontal posture should be enjoined during its use. The posture, observes the author, has a considerable influence on the discharge, "even when no application is made to the parts themselves." Local ablutions, with solutions of cupri sulphas, argenti nitras, and decoct. querci, have a considerable tendency to moderate the complaint. Spirits, however, says the author, are decidedly the most effectual of all applications; brandy or arquebusade, and even alcohol, may be employed. In one instance the author has removed the labium at the earnest solicitation of the patient.

The remaining portion of this work is devoted to those diseases which are attended with purulent discharges. These are: Inflammation of the mucous membrane of the vagina, abscess of the vagina, ulceration of the os uteri, corroding ulcer of the os uteri, ulcerated carcinoma of the rectum, and ulcerated carcinoma of the uterus. As we have already drawn out this article to a very considerable length, we shall conclude our account of this valuable work with a short analysis of the chapter "*on the corroding ulcer of the os uteri,*" and refer the reader to the work itself, from the perusal of which no one can rise without much useful instruction.

This complaint seldom occurs before the period at which the catamenia naturally cease to recur. The author states that he has not seen an instance of the disease before the age of forty.

Symptoms.—At first there is a sense of heat referred to the upper part of the vagina. Instead of the menstrual discharge, which has ceased, " a yellowish discharge escapes, perhaps trifling in quantity, and now and then mixed with a streak of blood; by degrees the sense of warmth is converted into a glowing heat, affecting the region of the uterus; and it is by no means uncommon with the patients to state that they feel 'as if a hot coal was within them.' "—This sensation of heat and its accompanying yellowish discharge, gradually increases, whilst the ulceration progresses *pari passu*. The countenance becomes pale, and general debility is produced. " Supposing," says the author, " that this disease were carcinomatous ulceration, amongst an assemblage of other symptoms, the most prominent would be the *lancinating* pain, which invariably attends that complaint. In the *corroding* ulcer, lancinating pain forms no part of the symptoms." Intense and acute pain is never present in this affection. When the ulcered os uteri is touched with the finger, the patient complains of no pain; she does not suddenly shrink from pressure, as when carcinomatous ulceration is present." She only complains of a sense of *soreness* in the part. " If an examination be made per vaginam, the breach of surface may be readily distinguished, and the extent of the disease ascertained; but no hardness of the parts will be present, no thickening, no deposit of new matter," as in the carcinomatous ulcer. This disease, says the author, uniformly possesses a fatal tendency. The treatment can only be palliative. Local bleeding, the hip-bath, twice or thrice a-day, of a temperature not exceeding 90°, saline purgatives, an abstemious diet, mild tonics, astringent injections, sulphuric acid exhibited internally, rest and mild diaphoretics, constitute the remediate means recommended by the author in this alarming malady. E.

ART. III.—*Specimen Medicum Inaugurale de Iodio.* Auctore. J. B. STARK. Lugdun, 1823. 8vo. pp. 64.

IODINE has been recently introduced to the notice of the profession as a remedy of very active and valuable powers. The discovery of its medicinal virtues is due to Dr. Coindet of Geneva, who, in 1820, published an account of his experience with it in the treatment of goitre, detailing a number of striking examples of its good effects in this disease. As is usual, however, with new remedies, the statements which have since been published concerning its powers, are exceedingly contradictory. By some it is represented as a safe and almost specific remedy in this singular affection, whilst others condemn it as useless and dangerous. Orfila places it among the caustic poisons. He states that a drachm of it given to several dogs killed them in four or five days, when the œsophagus was tied so as to prevent its being ejected from the stomach;—when the œsophagus was not tied, they threw it up and sustained no material injury from it. In those that died from its effects, the internal surface of the stomach was found covered with pustular ulcerations. Majendie, on the other hand, affirms that he injected a drachm of the tincture of iodine into the veins of several animals; and that he gave it to dogs, without their sustaining any injury from it. It only excited vomiting. He states, moreover, that he saw a child but four years old, swallow a tea-spoonful of the tincture by mistake, without experiencing any dangerous effects from it; and that he himself afterwards took the same quantity without injury, or any other consequence than a disagreeable taste of a few hours continuance. Indeed, the experiments which Orfila made on himself with this substance, show that it may be taken in considerable doses without injurious consequences. When he took it in doses of from one to four grains, he experienced no inconvenience from it. Six grains, however, excited a sensation of heat and constriction of the œsophagus, nausea, salivation, pain in

the stomach, and, finally, bilious vomiting, attended with colic pains. These symptoms subsided on using a few emolient enemata.

According to the observations of Hoffman, Ficinus, and Seiler, iodine acts as a general stimulus upon the system.* It is said to have a tendency to produce irregular determinations of blood to the internal organs,—and particularly to give rise to congestions in the lungs and organs of generation. Exhibited in strong doses, and continued for some time, it has given rise to the following effects: slow pulse, palpitation, dry and frequent cough, insomnolency, emaciation, prostration of strength, tremor, œdema, wasting of the mammary glands, and morbidly increased appetite.

It would appear, therefore, that iodine, though not properly ranked among poisons strictly so called, is nevertheless capable of exciting violent and dangerous effects in the animal economy,—and that consequently, its employment requires much circumspection and cautious management.

Iodine may be employed with nearly the same advantage, both internally and externally. For its internal exhibition it is used in the form of a tincture, made either of the pure iodine or of the hydriotate of pot-ash. Dr. Coindet gives the following formulæ for making the tincture:

℞ Iodü - - - - gr. xlviii.
Spir. vini - - - - ℥i.
m

or,

℞ Hydriodatis potassæ - ℥ss
Iodii - - - - gr. vi.
Aq. distillat. - - ℥i.
m

The dose of these preparations is ten drops three times

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* Zeitschrift für Natur und Heilkunde, 2ten. Bandes, 2tes. Heft, p. 263, et seq.

a-day, given in a little sweetened water, and gradually increased, until symptoms of general or local disturbance in the system make their appearance, when it must be discontinued for some time.

The ointment is made according to this prescription:

℞ Hydriodatis potassæ - - ʒss.
Axungiæ - - - - - ℥iss.
m. ft. ungt.

With this ointment frictions are to be made on the diseased part, twice daily. A portion about the size of a nutmeg is to be rubbed in at each time.

The employment of iodine as a remedy, has hitherto been almost entirely confined to the treatment of goitre, and other glandular indurations. The good effects of burned sponge in goitre, are now known to depend on the iodine it contains.* When iodine proves effectual, the following changes are observed to take place in the disease. After the medicine has been used about a week, the skin over the tumour becomes more relaxed and soft; the tumour itself soon becomes less tense; it begins to lessen in size, becoming more distinct and soft in its progress, until it finally disappears altogether.

The late German journals contain much testimony in favour of the efficacy of iodine in this disease. Dr. Baupt gave the iodine-tincture in thirty cases, twenty-eight of which were completely cured without any disagreeable consequences from the action of the medicine. The twenty-ninth patient took four small phials of the tincture, without experiencing any bad effects; but his disease was not in the least improved by it. The thirtieth also took it a long time; the tumour had almost entirely disappeared, when the following symptoms of the injurious effects of the iodine made their appearance:

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* Iodine is found to exist exclusively in the *marine cryptogamous plants*.

† Journal der Practischen Heilkunde. April, 1822.

emaciation, fever, thirst, peculiar alteration of the countenance, diarrhœa, morbid appetite, &c. The warm bath, a milk diet, and opium, soon removed these affections. A boy who had a very firm goitre, together with indurated and enlarged parotid glands, took the iodine, and was perfectly freed from his disease in nine weeks.

Baumes* has divided goitre into two distinct species. The one is a disease of the thyroid gland; (*goitre thyroidien*) the other of the cellular texture surrounding the gland (*goitre cellulaire.*) Formey thinks that iodine is useful only when the thyroid gland itself is the seat of the disease; and that where it is ineffectual, the enlargement and induration is seated in the cellular membrane surrounding the gland.†

Hufeland, in a note to Mr. Formey's paper, published in his journal, observes, that professor Graefe directed his attention to the fact that iodine is of service in goitre only when the tumour is free from pain. Where it is painful, and the arterial system is very irritable, this medicine is not only useless, but generally injurious.

The experience of Dr. I. Hoffman, (Zeitschrift für Natur und Heilkunde) also demonstrates the usefulness of this remedy in the disease in question. Ten children who were affected with goitre, took the iodine, under the direction of the physician. Six of these, who were between the ages of ten and eleven years, took at first five drops of the tincture three times daily. The other four, who were from thirteen to fifteen years of age, took six drops at a dose. After the first eight days, the dose for these last was increased to twenty drops, and that for the six younger patients to eighteen. So long as the tincture was given in doses of from six to ten drops, no perceptible effects were observed from its operation. By the time, however, that the dose was increased to fourteen and fifteen drops, an evident change took place in

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* Traité Elementaire de Nosologie. Tom. II.

† Hufeland's Journal, June, 1822, p. 86.

the disease. The diminution of the tumour went on regularly under the use of the medicine, and six of the patients were entirely cured by it. In two of the remaining four, the tumour was very much lessened in size; in one it became much softer; but in another, not the slightest impression was made on the disease. These four little patients were then put under a second course of the iodine, and in the course of five weeks all of them were entirely cured. Not the slightest injurious consequences were observed to arise from the iodine in these cases.

Formey states that from the fifth of February 1821, to the seventh of February 1822, he treated fifteen goitre patients with the iodine. Five of these did not use the medicine regularly; two, however, were evidently much benefited by it. Of the other ten patients, four were completely cured in the course of from twelve to eighteen weeks, and the remainder were much relieved.

According to Dr. Coindet, frictions with the iodine ointment are quite as effectual in this disease, as the internal exhibition of the tincture. He thinks, also, that when the medicine is thus externally applied, it is much less apt to produce those symptoms of general disorder in the system, which we have mentioned, than when exhibited internally.

The remediate effects of iodine are, however, not confined to goitre. Experience has shown that it is a valuable rememedy in various scrofulous affections. Dr. Coindet cured scrofulous ophthalmia, and glandular indurations with it; and we noticed in the first number of our journal an instance of its good effects in scirrhus uteri. A case of this latter affection is quoted by our author from Hufeland's journal, in which the iodine was of unquestionable service. Several practitioners have mentioned its emmenagogue effects. "I. Hoffman," says Dr. Stark, "gave the iodine to two patients with amenorrhœa; one was not benefited by it; but in the other, who was at the same time affected with chlorosis, a perfect cure was effected. Dr. Wachter has employed the iodine in polypus of the nose with the happiest effect.

"The iodine, says our author, is indicated in persons of phlegmatic and obese habits of body; and hence in indolent and lymphatic indurations. On the contrary, it is to be very cautiously exhibited in irritable and plethoric constitutions, where there is a tendency to congestions, inflammations, and hæmorrhages. A weak and nervous habit, a predisposition to phthisis, pregnancy, asthma, hysteric and hypochondriac affections, and an emaciated state of the body, are circumstances which demand great circumspection in the employment of this remedy. During the use of the iodine, it is recommended to take mucilaginous substances, in order to protect the stomach against its corrosive qualities. The author concludes his interesting little work with an account of eight cases in which this remedy was employed. Out of four cases of goitre, one was cured by the medicine; two appeared to be benefited at first, but they afterwards grew worse, and finally proved fatal. In one case no effect was produced. One case of scrofulous tumours in the neck was cured by this remedy; but another case of this kind was not benefited by it. One of the two remaining cases reported, was polypus of the nose. The medicine was used both internally and applied to the polypus in the form of a linimint through the nostril; the patient got well. The last case related, was scirrhus of the left ovarium; this case was much relieved by the use of the iodine.

It is not often that we meet with good Latin in dissertations of this kind; in the present instance, however, we were pleased to find an unusual degree of correctness and perspicuity of diction. E.

ART. IV.—*Lecture on the State of the Blood-vessels in Fevers.* By C. D. MEIGS, M. D.

WE have seldom witnessed a doctrine more confidently proclaimed, and yet, as we believe, more void of solid founda-

tion, than the one which is advanced in this paper. As the author requests "those who are not bound to consider every doctrine not laid down in the written code as an idle and useless innovation, to examine the one he advances carefully," we feel ourselves invited to the task; and we therefore proceed to offer our reasons for the judgment which we have thus, in the first sentence, ventured to pronounce on its merits.

The doctrine in question alleges that the arteries are *debilitated*, and in a state of *decreased* action, when the pulse is full, bounding, and hard, as in the hot stage of an intermittent; and that, on the contrary, they are more *vigorous* and in a state of *increased* action when the pulse is small, contracted, and feeble, as in the *cold* stage of fevers. This is the full amount of the doctrine,—a doctrine which the author, in the plenitude of his zeal, calls "the waters of Jordan," and in which he invites physicians "to wash seven times, and be cleansed from their leprosy of false doctrine in fever."

The action of a circular fibre, as the author correctly observes, tends to lessen its diameter; and, on the contrary, its relaxation or deficiency of action, must increase its diameter. Hence he infers, that, as in the cold stage of an intermittent, the arteries are small and contracted, they must consequently be in a state of *increased* action, and *vice versa*. "In the cold stage," he says, "the arteries contract with more force than in the hot stage," and hence they are in a state of increased action. Again: "when the arteries act most powerfully, when their calibre is smallest, we shall have a shrinking of the surface of the body, with paleness, coldness, cutis anserina, a small and frequent pulse, &c." That the arteries are in a state of debility and relaxation in fever, may be inferred, he thinks, from the state of the capillaries in inflammation. "I believe," says he, "the truth of a celebrated proposition of Vacca, defended by Dr. Lubbock and Mr. Allen, fully illustrated by Dr. W. Philip, and admitted

by Dr. Thompson,—viz: that in inflammation the capillary vessels are dilated and debilitated."

"I *believe* that fever is the archetype of inflammation,—fever being in the whole system what inflammation is in the capillary vessels."

"I *think* that a dilated and debilitated condition of the capillaries being taken in evidence, and as explanation of the phenomena of inflammation, a similar dilated condition is to be as evidence of an analogous state of arteries in fever,—for fever is the archetype of inflammation, and a certain pathology being admitted in one case, is established in the other." In order to support the correctness of these observations, he endeavours to show that the whole circulating system,—the heart, arteries, capillaries, and veins, are "an unit of tissues;" and that all these component parts enjoy the "same *kind* of vitality; and hence," says he, "if the heart be so excitable, and excited as to resist more than is natural, a full dilatation of its ventricles, the vessels will partake of the same pathological condition generally."

Having given this succinct, but, we trust, correct view of the author's theory, it becomes our business to show its fallacy, and to point out the utter futility of the arguments by which he endeavours to support it.

His first and fundamental position, that, "in the *cold* stage of fever the arteries contract with *more force* than in the *hot* stage," is erroneous, being derived from incorrect views concerning the properties of the arterial tubes. Had he said that in the cold stage of fever the arteries *are more contracted* than in the hot stage, he would have spoken correctly; but the assertion that they *act with more force*, is gratuitous, and wholly incapable of demonstration. It must be recollected that the arteries are not muscular tubes;—that they do not possess the irritability and contractility peculiar to muscular structure;—that, in short, their principle of contraction is totally distinct from that of the heart; being the consequence, not of an excitation of muscular contractility, but of an *elastic*

power, inherent in the arterial structure, by virtue of which, these vessels dilate or contract, according as they are distended by mechanical force. This elasticity is what Bichat calls the "contractility of texture;" the contraction which results from its action "occurs only when there is a want of distention of the arterial parities, that is to say, when these vessels cease to contain the blood which resists their contraction." Thus, if a portion of an artery, included between two ligatures, be punctured, so as to give escape to its contents, it loses half its caliber. And, again, if blood be transfused into the veins of dogs, so as to produce in them an artificial plethora, the arteries become much enlarged.* "These experiments show me satisfactorily," says Bichat, "the cause of a large and small pulse. The artery is more or less large according to the quantity of blood it contains." It is not necessary, he adds, that a stimulant be applied to the arterial texture to cause these vessels to contract; the only thing required is the absence of extension. It is, therefore, obviously erroneous, to say, that an artery contracts with *more force* when its caliber is diminished, as in the cold stage of an intermittent; for if there be any difference in the power with which an elastic substance, such as the arteries, approaches its point of quiescence, it would be more reasonable to suppose that the power is greater in proportion as the distending power forces it from that point; and consequently, greater in the arteries when they are *distended* with blood, than when they contain but a small portion of this fluid, so as to allow the elasticity of structure to approach its point of rest. If from an elastic tube distended with some fluid, a portion of its contents were suffered to escape, the tube would, of course, contract. But would any one say that the tube contracted with *more force*, because it had contracted to a smaller caliber? It is precisely so with regard to the arte-

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ries, in the cold stage of fever, or in any other state in which their diameter is lessened. The argument which Dr. M. draws in favour of his theory from the state of the blood-vessels in inflammation, can avail him nothing. His reasoning on this point may be thus stated: in inflammation the capillaries are debilitated and dilated; but, "I *believe* that fever is the archetype of inflammation;" therefore, fever is attended with a *debilitated* and dilated state of the arteries. We do not exactly know what he means by the postulate, "that fever is the archetype of inflammation." What proof has he for this assertion? He has given us none but his ipse dixit,—he *believes* it, and therefore it is so. The circulating system is not, as our author affirms "an unit of tissues," possessing the "*same kind of vitality*" in all its parts. The texture, properties, and diseases of the capillaries, are essentially distinct from those of the arteries. Their dilatation and contraction depends on a principle very different from that which determines the same changes in the arterial tubes. The arteries dilate or contract, according to the quantity of blood which is forced into them by the heart; their condition, in this respect, is the effect either of mere mechanical distention, or of contraction by elasticity from deficiency of distention. The capillaries, on the contrary, act from an inherent principle of contractility;—they dilate or contract, altogether independent of the heart or arteries. In inflammation, for instance, the capillaries dilate,—either because they are debilitated, or because their organic sensibility (according to the ingenious theory of Bichat) is changed, in consequence of which, they admit more blood than they do in a natural state. In fever, on the contrary, the arteries are enlarged, not by their own action, but by the larger quantity of blood forced into them by the heart, or, as may sometimes happen, by the passage of the blood through the capillary or venous systems being impeded; from which an accumulation of this fluid takes place in the arteries. There is, therefore, no *essential* analogy between the state

of the capillaries in inflammation, and the arteries in fever, so far as relates to their action and state of dilatation. Besides these, there are other considerations, obviously repugnant to our author's assertion, that the state of the arteries in fever, is similar to that of the capillaries in inflammations. In every inflammation the capillaries are dilated, and, if you please, debilitated. If, then, according to the broad position of our author, fever be the archetype of inflammation, ought not the arteries in all fevers to be dilated, or filled with an extraordinary portion of blood? But this is not the case. The volume of the pulse in hectic, and the advanced periods of typhous fevers is almost always below the natural standard.

As Dr. M. maintains that a small or contracted pulse is an evidence of increased vigour and action of the arteries, he is obliged, also, to admit that the arteries are stronger, and act with more force in approaching syncope, typhous fever, inanition, &c.,—an admission which, to say the least of it, offers very unfavourable testimony in behalf of his doctrine. According to his notion, increased action of the heart means nothing else than increased *contraction*. "The heart less irritated,—less in *action*, allows its fibres to be completely distended, and its cavities completely filled;—it takes in its full two ounces and a half of blood, which, *when it is thrown into the vessels, produces a large, round, full pulse, &c.*" Here the author admits that the size of the pulse depends on the quantity of blood forced into the arteries by the heart,—that it is "large, round, full," when much blood is thrown into them, and *vice versa*. With what propriety then, does he maintain that a full pulse indicates *debility* and *decreased* action of the arteries, when their state of dilatation is the effect of mere mechanical distention,—when they are dilated or contracted merely because there is a greater or less distending force applied to them, they being in this respect, merely in a passive and not in an active state. Were it true, as he supposes, that increased *contraction* alone constituted increased *action* of the heart, then indeed we should be obliged

to admit, that a small pulse is indicative of increased action, at least of the heart, if not also of the arteries. The heart, however, is not passive in its dilatations; the act of dilatation is not merely a remission from action, but as much the effect of the active powers of the heart, as its contraction.—"In order," says Bichat, "to judge comparatively of the degree of force of the contraction and dilatation, we can extract two hearts nearly equal in size, from two living animals; place immediately the fingers of one hand into the auricles, or the ventricles of the first, and grasp, with the other hand, the exterior of the second, you will feel that one makes as great an effort in dilating, as the other does in contracting.—This fact, already observed by Pechlin, is so much the more remarkable, *as the effort of dilatation is often greater than that of contraction.** Unquestionably, therefore, an *increased* action of the heart consists both of a more vigorous contraction and dilatation of this organ. When, therefore, the heart is increased, it at once receives and expels a larger quantity of blood than in its ordinary state; and as the arteries are thereby more distended, and of course augmented in volume, a full, round pulse is justly held as an evidence of increased action of the heart and arteries.

Having established, as he conceives, his doctrine, that a small pulse is an indication of strong, and a large and round one, of weak arterial action, he proceeds to apply it to the phenomena of fever, in the following way: The causes of fever produce an increased action of the heart and arteries, manifested by a small, contracted, and feeble pulse; this is the cold stage. But the heart and arteries, in consequence of their decreased action, have their energies reduced. Hence, after the violent arterial action during the cold stage has continued for some time, the heart and arteries become debilitated; the veins, which, during the cold stage, were debili-

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* General Anatomy, Vol. III. p. 53.—Hayward's Translation.

tated and turgid with blood, now get the upper-hand, and force their contents into the relaxed and debilitated arteries;—the pulse comes full, round, and hard,—evincing the weak action of the heart and arteries, and this is the hot stage.—"But," says he, "what is the third stage? I answer, that the natural termination of the foregoing condition, is to be looked for in some evacuation, which, by diminishing the quantum of fluids, and removing irritating, recrementitial particles retained in the former, may reduce the mass, and momentum, and stimulus. The momentum of the circulation is now very great, for the arterial, capillary, and venous systems and the heart are now equipoise,—the whole system is pervious, being equally free for the passage of the blood, with a heart beating oftener, and throwing out more blood than in a state of health." How is this? The Doctor has told us that during the hot stage the heart and arteries are in a state of debility, acting with diminished energy. If this be the case, how can a reduction of the mass of the blood, and an abstraction of stimulus, restore the lost energy of the arteries, and terminate the hot stage? He may, perhaps, tell us, that if we lessen the quantity of the blood, the arteries will contract; and as he considers increased contraction synonymous with increased action, he may suppose himself in possession of a good sylogysm in favour of his position.

In the above paragraph the author tells us, that in the sweating stage "the *momentum* of the circulation is very great." In this we agree with him perfectly; but how can he reconcile this fact with the principles of his doctrine? In the sweating stage, not only the arteries, but the veins, capillaries, and heart, are more dilated than in a state of health, and therefore, according to him, more debilitated. How, we ask, can the momentum of the blood be increased, when the force which moves it is diminished? Again: In the cold stage of fever we are told, the arteries act with increased energy; in the hot stage, on the contrary, their action is diminished. Now, when a vein is opened in the cold stage,

the blood will hardly flow from the orifice; but when opened in the hot stage, it will rush out in a full and forcible stream. How is it, then, that the momentum of the blood is feeble when the impelling powers are (according to the author) energetic; whilst, on the contrary, it is so great when these powers are, according to him, weak?

After having, in his opinion, fully established his doctrine, our author asks: "What does this doctrine teach me? It teaches me that I should commit a murder by bleeding a patient in a violent attack of chill or ague, because I should, knowingly or voluntarily, increase a disturbance in the circulation, of itself often sufficient to extinguish life." Undoubtedly, bleeding would, in most instances, be very injurious in the cold stage of an ague. In our humble opinion, however, the true tendency of this doctrine is rather to lead to, than to deter from, the adoption of such a practice. If, as this doctrine alleges, the arteries in the chill of an ague be in a state of increased action, and the veins debilitated and distended with a superabundant quantity of blood, would it not appear proper to lessen the inordinate quantity of blood in the veins, in order to restore the balance of the circulation? Is not this, in fact, the practice recommended by many of the ablest physicians of the day, in cases of venous congestion? In the chill of an ague the pulse is small, and the veins are overloaded with blood: these things also exist in the congestive form of fever. Why, therefore, should the same condition of the blood vessels in two different diseases teach the practitioner that in the one he would murder his patient, should he bleed; whilst in the other, he would cure him by this operation? If the doctrine in question were true, it could not lead to partial principles of practice in this respect. The truth, we apprehend, is, that in the congestive form of fever, the power of the heart and arteries is not impaired, or materially weakened, but *oppressed.* By bleeding we take off the oppressing load, and this enables the heart and arteries again to act with more energy. In the cold stage of an ague, how-

ever, the heart is *debilitated*,—its energies are lessened by the morbific cause; the blood not being transmitted in its ordinary quantity and velocity through this organ, accumulates in the venous system. If in this state we were to bleed, we should debilitate the heart still more, and of course increase, instead of diminishing, the morbid condition of the vascular system.

Again, our author says, "this doctrine teaches me not to give brandy and red pepper in pleurisy, nor bark in acute rheumatism." How does his doctrine teach him this? He alleges that a full, round, and strong pulse, is a mark of *debility* and *want* of due *action* in the arterial system. Now in pleurisy the pulse is precisely in this condition. Why not then, if he means to be true to his theory, give brandy and pepper? Are not these articles stimulants? Why, therefore, should he not use them in order to excite the debilitated action of the heart and arteries? Will he tell us that brandy and pepper are sedatives,—that they diminish arterial action? He is, in fact, driven to this conclusion; for as these articles, when taken, produce a "full, round, and hard" pulse, and as, according to his theory, this state of the pulse is indicative of *arterial debility*, they can be nothing else than sedatives!

But we fear we have already wasted too much time on the errors and inconsistencies of this singular theory. To us it appears far from being "the waters of Jordan," in which the errors of false doctrine are to be washed off. We view it rather as an ignis fatuus, which, having caught our author's eyes, has led him into difficulties from which we trust he will extricate himself, as soon as day-light again shines upon him. E.

ART. V.—*An Essay on the Blood, comprehending the chief circumstances which influence its coagulation; the nature of the Buffy Coat; with a concise medical view of the state of the blood in disease; and an account of the powers of a saturated solution of alum as a styptic remedy in hæmorrhage.* By CHARLES SCUDAMORE, M. D. F. R. S., &c., &c. 8vo. pp. 162. London, 1824.

NOTWITHSTANDING the great importance which was formerly attributed to the blood by humoral pathologists, and the warm disputes which have since been maintained respecting its nature,—to say nothing of its actual necessity to the animal economy,—the properties and constitution of that fluid have not, as yet, been satisfactorily determined. The genius of Hunter being perplexed in this research, was compelled to resort to an hypothesis for assistance; and subsequent inquiries have generally not been favoured with better success.

Although the circumstance has not been openly avowed, still it is evident that most of the writers who have handled this subject, have ranged themselves on one or other side of the grand question respecting the vitality of the blood. This has necessarily interfered more or less with the judgment of every experimenter; and the consequence has naturally followed, that the mind has been diverted from the real object of inquiry, to a consideration of far less importance to the interests of pathology.

To these objections the author of the work before us is by no means liable. He has pursued a different course, and afforded another example of the benefits to be derived from the inductive method of cultivating our science. Although he has not exhausted the subject, still he has placed it in a light under which its particular features can hereafter be examined with a much greater prospect of success. By submitting every principle to the test of repeated and carefully performed experiments, and by observing with nice discrimination the various phenomena that are presented by the blood in different situations, he has been enabled to furnish his read-

ers with a body of facts and opinions which appear to us too strong to be resisted. We do not think that we should rate this performance of Dr. Scudamore too highly, were we to assert that it is calculated to raise the character which his celebrated work on gout, &c., had already obtained for him. We shall exert ourselves to procure a republication of it, in this country, for we believe that our brethren have heretofore had less opportunity of informing themselves respecting the actual properties and constitution of the blood, than upon almost any other subject connected with the profession. On the present occasion we shall merely bring forward an exposition of the most interesting facts and principles which have been developed in the work before us, with such general illustrations as may appear useful to our readers.

As preliminary to his more immediate subject, the author has drawn up, from the latest and best authors, a very lucid account of the chemical constitution of the blood. He quotes freely from Brande, Berzelius, Marcet, Bostock, and Thomson, whose opinions in relation to this part of the subject, must be considered as authoritative. The most interesting circumstance which has struck our attention in reading these extracts, is the fact that there is a perpetual variation in the composition of the blood, as regards both the proportion of the different parts into which it spontaneously separates, and the proximate as well as elementary ingredients of these several parts themselves. It is not surprising, therefore, that the analyses of different chemists should differ so much from each other, or that the analysis itself should be involved in so much difficulty that its results can only be considered as approximating to the truth, nor is it unreasonable that in consequence of these circumstances, an opinion should be entertained in favour of the long established doctrine concerning the influence of the blood upon the general health.

In detailing the properties of serum, some interesting observations are made respecting albumen, the fluidity and solubility of which, in water, is supposed to be owing to the soda

with which it is combined. "Liquid albumen is soluble in water, and always contains a notable portion of soda, indicated by its action on vegetable colours." "It is coagulated by heat, acids, and alcohol. It is also instantly coagulated by voltaic electricity; and if two platinum wires, connected with a small battery, be immersed into diluted albumen, it will cause a very rapid coagulation at the negative pole, and scarcely any effect at the positive pole." The action of alcohol and acids in coagulating albumen, is accounted for, according to Mr. Brande, by their affinity for the soda which held it in solution. The galvanic influence, also, by accumulating the soda at the positive pole, leaves the albumen to coagulate at the negative one, in consequence of being deprived of its solvent. Caloric is supposed to effect a kind of decomposition of the liquid albumen. "We might thus consider liquid albumen as a compound of albumen and soda dissolved in water; the effect of heat would then be to transfer the soda to the water, and thus occasion a coagulation; and a *solution of soda* is always found oozing from coagulated serum, and has sometimes been called *serocity;* in time it re-acts upon the coagulum, and dissolves a portion of it."

It is quite a remarkable circumstance that the three most important animal substances,—albumen, fibrin, and gelatin, should differ so greatly in all their sensible properties, and yet be hardly distinguishable from each other in their elementary composition. We do not observe that our author has taken particular notice of this fact, although he has quoted Hatchett to prove that albumen is converted by dilute nitric acid into a substance precisely like gelatine. In one of his extracts from Brande, however, it is asserted that "the *chemical* properties of fibrin are those of albumen." Nearly the same thing is true of several vegetable productions, which are altogether dissimilar to each other in their qualities and appearance, and yet present precisely the same component parts, in almost the same proportion, under a chemical analysis. These circumstances appear to be wholly inexpli-

cable on the commonly received doctrine of atomic combinations, which has probably been extended beyond its legitimate sphere. Perhaps a much slighter difference in the proportion of the various ingredients of different substances, than has generally been imagined, may be sufficient to account for such a diversity of qualities.

On the subject of the *colouring principle* of the blood, some interesting extracts are given from Brande and Thomson. It was formerly supposed that this substance existed in the form of red globules, which were soluble in water. But it has been shown by Dr. Young, that the effect of water is to dissolve the colouring matter only, leaving the globule perfectly colourless, and that in this state the globular particles have the properties of albumen. The colouring matter is supposed to consist in a peculiar animal principle, which adheres to the red globules in a healthy state of the blood, but can be separated from them by various re-agents. Respecting the nature of this principle, different opinions have been formed. It was formerly supposed that it was characterized by the presence of iron. Mr. Brande, however, thinks he has proved that the colour of the blood is not to be referred to iron, and that it is connected with the removal of a portion of carbon and hydrogen from that fluid. In addition to several experiments performed by Mr. Brande, the following extract is adduced to support his views. "It is not a little remarkable that blood is used by the American dyers, together with madder, in the preparations of their finest and most durable reds, and that it has even been found a necessary addition to insure the permanency of the colour. This fact alone may be regarded as demonstrating the non-existence of iron as the colouring principle of the blood, for the compounds of that metal convert the red madder to gray and black."

Dr. Thomson, on the contrary, asserts that "when the colouring matter is incinerated, about one-third per cent. of oxide of iron may be extracted from its ashes. This portion of

iron is a constituent of the colouring matter, and, perhaps, the cause of its red colour. But in what way it is united to the albuminous portion of the colouring matter remains unknown." Berzelius also asserts, that when incinerated, the colouring matter leaves one-eightieth of its weight in ashes, of which about one-half is the oxide combined with a small portion of the sub-phosphate of iron; the remainder being composed of lime, phosphate of lime, carbonic acid, &c. He is of opinion, however, that none of these compound bodies existed in the colouring matter; but merely their bases—iron, phosphorus, calcium, &c.; and that they were formed during the incineration.

It has been ascertained by Thomson, that the albumen of the blood leaves the same quantity of ashes as the colouring matter, and that these ashes contain no traces of iron. This will, no doubt, be considered as a strong argument in favour of the opinion that the colour of the blood depends on the existence of iron in its colouring matter. Still the authorities upon this point are so opposed to each other, that it is extremely difficult to decide in favour of either side of the question in dispute.

Our author has performed several experiments with a view of ascertaining the truth in regard to this subject. He dried both the venous and arterial blood of different persons, and of sheep, at a temperature not exceeding 120°, and submitted it, in a pulverized state, to the influence of a magnet. After the most careful observation, he could not discover that the magnet exercised the smallest influence over any portion of the blood. By digesting the ashes of blood in dilute muriatic acid, however, he was enabled to detect some slight traces of iron on the addition of chemical tests. The solution of ammonia threw down a reddish coloured precipitate. This precipitate was washed with distilled water, and re-dissolved in the least possible quantity of muriatic acid. Being then tested by the prussiate of potash, a deep blue colour appeared, and the addition of tincture of galls produced a purple hue.

He observes, therefore, that the chemical results which he has obtained, would lead him to draw a middle conclusion between the opinions of Brande and Berzelius, as to the quantity of iron; but certainly the position of the former professor, that the colouring principle of the blood is not to be referred to iron, is rendered highly probable, if not completely established."

But the principal object of Dr. Scudamore has been to inquire into the circumstances which influence the *coagulation of the blood.* Notwithstanding the labours of Hunter, Hewson, and others, in this department of physiology, the results which they had described did not appear to him very satisfactory; he has, therefore, not only repeated their experiments with great care, but he has also extended his examination to various other circumstances connected with this interesting process.

"In relation to the time and manner in which the blood coagulates, and also as involving some other phenomena, I shall enter into the following considerations:—Temperature of the blood, as affected by the air of the apartment, or by heat or cold artificially applied. The blood placed in vacuo, and also its entire exclusion, in the first instance, from the atmospheric air. The extrication of carbonic acid gas. Specific gravity; and dilution of the blood. Fast or slow stream in venesection. Rest or agitation of the blood. Kind of vessel in which the blood is received. The presence or absence of the fibrinous coat. The blood as being arterial or venous. The vital principle. Influence of electricity and galvanism applied to the blood. Influence of the following gases: oxygen, hydrogen, carbonic acid, azote. Effect of some chemical agents. The question of the evolution of heat during the coagulation of the blood. On the fibrinous, or buffy-coat of the blood. And, lastly, general conclusions, and medical observations."

The details of his experiments are full and conclusive; but they are so extensive, amounting to ninety-six in number, that

we can only pretend to give a brief summary of their most interesting results.

The first four experiments illustrate the influence of temperature in a very satisfactory manner. Equal portions of blood were drawn at the same time, from the same individual, and exposed to different degrees of heat. The result uniformly was, that the process of coagulation became accelerated by an increase, and retarded by a diminution of temperature. Mr. Hewson's assertion, however, that the disposition to coagulate might be entirely taken off by a long exposure to cold, did not prove to be correct. Under the influence of a frigorific mixture, the coagulation of a portion of blood could only be retarded till the expiration of one hour and a quarter, when it began to separate into its constituent parts. The 5th experiment was performed to determine the rate of coagulation *in vacuo*. Of two equal portions of blood, drawn at the same instant, one was placed under an air-pump, and the other exposed in the apartment. "The blood in each cup was 81°. Immediately on the exhaustion being made, the thermometer fell to 80°; in a minute and a half, to 79.5°." At the end of six minutes it had fallen to 76°. The cup exposed to the air of the apartment, on the other hand, was reduced only half a degree in five minutes, and at the end of six minutes it rose one-tenth of a degree, almost to its original temperature. At six minutes and a half he removed the blood from the air-pump, and found it more coagulated than the other portion; it was also considerably darker in colour.

Experiment 6th was a repetition of the former, with a still more decisive result. The temperature of the blood when placed under the air-pump, was 84°. In half a minute after the exhaustion, it fell to 80°; and in five minutes to 75°. The other portion of the same blood, which was exposed to the air of the apartment, lost only one degree and a half of its temperature in the same period of time. "The blood being now removed from the air-pump, was found much more

coagulated than the other portion; it was free from air vesicles on the surface, the other abounding with them. It was almost black in colour, the other having the usual appearance."

The cause of the sudden reduction of temperature under the air-pump, is sufficiently obvious. The pressure of the atmosphere being removed, evaporation must take place more rapidly from the surface of the blood, and, of course, a greater quantity of caloric must escape in union with the vapour. But the cause of the accelerated coagulation of blood under these circumstances, is not so easily explained. In the four first experiments, it was proved that a simple diminution of temperature retards this process. What, therefore, can constitute the difference in the influence of a low temperature upon blood exposed to the air, and upon the same fluid when placed *in vacuo?* According to Mr. Hunter, the presence of air, by stimulating the blood, ought to excite coagulation. Mr. Hewson, also, in his inquiry, evidently attributes coagulation to the influence of the same agent. But it is proved by these experiments, that the blood undergoes a change in its condition more rapidly under a vacuum, than when placed in full communication with the atmosphere.

To elucidate still further the influence of air and of temperature, the four succeeding experiments were instituted. In the first of these, two bottles, fitted with ground stoppers, were filled with different portions of the same blood. In one bottle the stopper was instantly inserted; the other bottle was left open. In five minutes the blood in the open bottle appeared to be coagulated; but in the other bottle it was nearly fluid. The temperature in each bottle continued at 82°. Here was a result contradicting that obtained in the experiment with the air-pump. The blood excluded from the atmosphere coagulated most slowly, the temperature of the two portions being the same. In experiment 8th, 9th, and 10th, these trials were repeated in various ways, all of which furnished the same fact with still stronger confirmation.—In reviewing the subject as thus far displayed, the author was

staggered with the following perplexities. 1.—Low temperature delays the coagulation of the blood, as is shown in the first experiments. 2.—At a reduced temperature, *in vacuo*, coagulation is hastened. Experiment 5th, and 6th. 3.—Atmospherical air being simply excluded in the stopped bottle, the temperature not reduced, coagulation is retarded. Experiment 7th. 4.—All communication with atmospherical air being prevented, the temperature not reduced, coagulation is much retarded. Experiment 8th, 9th, and 10th.

In order to reconcile these apparent contradictions in the results of his experiments, the author was driven to the supposition that "the more or less gradual extrication of the carbonic acid belonging to the blood, was the chief circumstance having an influence on the period of time in which the coagulation takes place." To put this hypothesis to the test, he performed nineteen experiments, in which, by means of lime-water, he was enabled to detect the carbonic acid as it was evolved from the blood. From these experiments it appears to be satisfactorily demonstrated, that whatever circumstances hasten the evolution of this gas, promote coagulation; and, *vice versa*, that the evolution of the carbonic acid takes place most freely when the blood is coagulating, and ceases when that process is completed.

This opinion, which we believe to be original with Dr. Scudamore, harmonizes with all the facts deduced from the previous experiments, and explains away every appearance of contradiction between them. Thus, in the first class of experiments, the low temperature retarded coagulation in consequence of its preventing the extrication of the fixed air: in the second class, the removal of the pressure of the atmosphere was followed by a sudden extrication of the gas, which, of course, accelerated the coagulation, notwithstanding the diminution of temperature: and, thirdly, when the blood was placed in a bottle, the confinement of the gas, as a necessary consequence, retarded the same process.

That carbonic acid gas is evolved from the blood during

the process of coagulation, was fully demonstrated by Sir Everard Home, in the Philosophical Transactions for the year 1818. He placed fresh drawn blood under the receiver of an air-pump, and found that a quantity of gas sufficient to produce an appearance of effervescence, escaped during the action of the machine. He ascertained that this was the carbonic acid gas; and he asserted that it was met with in the same proportions in arterial and venous blood; and that two cubic inches were extricated from every ounce of blood. He did not, however, draw any inference from these observations, in regard to the time of coagulation, as connected with the extrication of the gas. The credit of this suggestion, as far as we can discover from what has been written on the subject, belongs exclusively to Dr. Scudamore.

Our author does not coincide with Sir Everard, in the opinion that two cubic inches of gas can be extricated from every ounce of blood. He performed several experiments with Mr. Garden, in most of which only about forty-five-hundredths of a cubic inch of gas could be detected in six ounces of blood. The proportion, however, varied considerably in blood drawn from different subjects. The largest quantity which, in any instance, he was able to obtain, was "rather less than half a cubic inch from six ounces of blood, a result remarkably in opposition to that quoted by Sir Everard Home."

In one experiment blood was drawn from a young man in health, before dinner, and again two hours after; and it is worthy of observation, that the quantity last taken yielded double the proportion of carbonic acid to that obtained from the blood drawn before the meal.

To ascertain the specific gravity, and dilution of the blood, he performed a great number of experiments, from which the following are his conclusions:

"Blood possessing the highest specific gravity, coagulates the most quickly, and the best specimens of such blood are obtained from persons in health, and of a robust constitution. In blood

of this description, there is the largest proportion of red particles, which are the heaviest parts of the mass. Blood which gives the fibrinous coat in a great degree, has a lower specific gravity than healthy blood, and is slowest in coagulation.—Fibrin is lighter than the red particles, and also lighter than serum. In the two most extreme examples which I have met with, the blood of a robust female in health, was 1.059, and coagulated in four minutes. That of a man labouring under pneumonia, and who was bled for the fifth time, was 1.039, and did not coagulate completely till twenty minutes. I must, however, observe, that moderately sizy blood drawn from a person before he becomes weakened, has not commonly a very low specific gravity."

His inquiries into the comparative specific gravity of different kinds of blood, resulted in a conviction that both the temperature and specific gravity of the venous was somewhat less than those of the arterial blood.

Our author's experience in regard to the influence of the rapidity of the stream in blood-letting, corresponds with that of all other practitioners. The slower the stream, the more rapid is the coagulation; and *vice versa*. Blood drawn from a person about to faint, coagulates very rapidly; and the same fluid passing from the vessels of a dying animal, is almost instantly solid. The author endeavours to explain these facts, by stating "that the blood passing down the arm in a slow manner, parts with its carbonic acid more readily and more completely."

He has also proved what every physician already knows, that agitation of fresh drawn blood favours its coagulation. Mr. Hunter would attribute this effect to the stimulus of motion upon the living principle of the blood, and we believe that most physiologists have been satisfied with his explanation. Dr. Scudamore, however, asserts, that agitation accelerates coagulation merely because it favours the escape of the fixed air from the blood. We will not, for the present, undertake to decide this point, for the doctrine concerning the vitality of the blood, must previously be dis-

cussed, and if that be decided in the negative, every explanation connected with it must of course fall to the ground.

If blood, immediately after being received in a basin, be stirred briskly with a stick, the fibrin will be separated from the red particles, and adhere in a twisted mass to the stick. The ordinary mode of coagulation is then prevented, the coloured portion in the basin remaining perfectly fluid. This he regards as a simple and familiar proof that the solidification of the fibrin is the essential cause of the coagulation of the crassamentum of the blood.

As our author observes, the time in which the coagulation of the blood is effected, differs very much according to the kind of vessel into which it is received. He put equal quantities of blood into a tea-cup, a saucer, and an open-mouthed phial. In three minutes he could raise a thread of fibrin from the phial; not until five minutes in the same degree from the cup, and not till seven from the saucer. At the end of nine minutes the temperature of the blood in the phial was 75°, in the cup 70°, in the saucer 60°. Here the difference in the time of coagulating was evidently owing to the difference of temperature. The vessel which retained heat the longest, solidified the blood most rapidly. He repeated this experiment with different vessels, and found the coagulation most delayed when the blood was received in a pewter porringer, from the obvious circumstance that such a vessel was a good conductor of heat.

The form of the vessel has no influence on the process of coagulation, except so far as it favours the escape or retention of heat. He poured equal quantities of fresh drawn blood into a saucer and a tea-cup, and kept both these vessels at the same temperature by immersing them in a basin of hot water. The blood in each coagulated exactly and equally in four minutes.

Although our author has not mentioned the circumstance particularly, he no doubt wishes to have it all along understood that heat affects coagulation chiefly by means of the influence which it exerts upon the state of the carbonic acid.

This gas always combines with water in an inverse proportion to its temperature; and it is probable that the same thing takes place in regard to the blood. It must be driven off sooner by heat, and retained longer by cold.

There is reason to believe, however, that heat exercises some immediate influence over coagulation, independently of the intervention of fixed air. By elevating the temperature of blood very much, the fibrin is rendered almost immediately solid. This closely resembles the coagulation of albumen by heat; but it is effected at a lower degree of temperature. In a specimen of healthy blood, it required only 120° to solidify the fibrin, while the serum did not begin to coagulate till the temperature was raised to 140°.—In blood of a low specific gravity, taken after the patient had been bled several times, "the same degree of effects required a heat of 130° for the fibrin, and of 160° for the serum." The temperature required, both to coagulate the serum, and to render the fibrin almost immediately solid, appears, therefore, to vary according to the density of the blood.

The following passage is so interesting, that we extract it entire for the benefit of our readers:

"In attempting to explain the coagulation of the blood, I should be induced to say that it depends on a new condition of the fibrin, which can only exist fluid in a state of intimate mixture with red particles, serum, and carbonic acid gas. Except in circulation, or in living vessels, the fibrin will not maintain an union with the serum, although it does continue blended with the red particles, either when extravasated in the living body, or when taken from the vessels. It is therefore the property of the fibrin to become solid when separated from the several principles just stated, constituting in union the mass which we call blood."

He asserts that when the fibrin is in great excess, it is less dense than in healthy blood, and takes the solid form more slowly. This affords a good foundation for the commonly

received opinion respecting the cause of the sizy appearance of blood. Both the want of density in the fibrin, and the slowness of coagulation, favour the subsidence of the red globules, on which the appearance alluded to unquestionably depends.

According to his experiments, it is in inflammation of the fibrinous textures that the greatest quantity of fibrin is found in the blood. He was therefore led to conceive that, under such circumstances, the fibrin, instead of being distributed to the fibrous textures, as usual in health, remains in excess in the blood. The textures in question would, as he thinks, be injured by receiving their usual supply of fibrin, while in a state of disease.

Upon the subject of the proportion of fibrin to the whole quantity of blood, a large number of interesting and instructive experiments are detailed. The result appears to have been that only from two and a-half to four and a-half grains of dried fibrin could be obtained from one thousand grains of the clot of healthy blood; while from ten to thirteen and a-half grains of the same substance could be extracted from one thousand grains of the clot of blood taken from patients in a state of active inflammation. It is also proved very clearly that the proportion of fibrin in different cups of blood drawn at the same bleeding, varies exceedingly. Sometimes there is a difference of more than one-half between the contents of two cups. For example, he found, in one instance of sizy blood, the proportion in the first cup for one thousand grains of clot, twelve grains; and in the last cup not quite six grains. This he explains by the supposition that in the space of time occupied by the venesection, the state of the circulation undergoes a change, so that the capillaries at once make a different distribution of the fibrin; "resuming, in a great measure, their ordinary economy, and conveying it to the fibrous textures, instead of returning it in unnatural excess to the venous circulation."

By watching the progress of coagulation in a phial, he as-

certained that healthy blood coagulates first in the middle, and afterwards at the top and bottom. His explanation is that the middle keeps warmest, and of course parts with its carbonic acid most readily. But the order of coagulation in sizy blood is different. It commences towards the bottom of the vessel; because the fibrin is there in excess, and that which is blended with the red particles, concretes much more readily than that which is mixed with the serum.

His experiments to ascertain the difference in the coagulation of arterial and venous blood were attended with opposite results. Sometimes one, and at other times the other, kind of blood would coagulate soonest. He concluded, therefore, that the only circumstance which has an influence on the coagulation of these two kinds of blood when taken from the same subject, "is the slow or fast stream, which causes the carbonic acid to pass off more or less freely." The temperature of the arterial blood, however, was always a little higher than that of the venous.

To decide the correctness of Mr. Hunter's favourite doctrine respecting the vitality of the blood, our author has performed a great number of exceedingly curious and decisive experiments. After what has already been stated, we hardly need inform our readers that he has come to the conclusion that the changes which the blood undergoes, when drawn from its vessels, are entirely of a chemical nature. By the greater or less proportion and density of fibrin, or by the influence of temperature and the various other circumstances which accelerate or retard the evolution of carbonic acid, he undertakes to explain every appearance of change in the condition of coagulating blood. He has refuted most of the positions of Mr. Hunter with great ingenuity; but, as our limits will not permit us to enter freely into this subject, we must content ourselves with noticing the most prominent circumstances connected with it.

One of Mr. Hunter's advocates, Mr. Thackarah, has asserted that "the coagulation of the blood is considerably de-

layed if received in a vessel recently insulated, or recently removed from a living animal;" and this has been insisted on as a strong argument in favour of the doctrine under consideration. The results of several experiments performed by our author, do not, however, agree with this assertion. He collected a quantity of blood, drawn from a young man in health, in a portion of the small intestine of a rabbit killed on the previous day, and another quantity in a similar portion of intestine from a rabbit killed at the moment of the experiment. The blood received in the intestine of the newly killed animal, gave a small coagulum in eight minutes and a-half, and was rather more advanced than the blood received in the other intestine, which he thought might be attributed to the higher temperature of the intestine just taken warm from the body. Each being examined at the end of fourteen minutes and a-half, he found that the intestine from the newly killed animal contained much the largest quantity of coagulum.

Several other similar experiments, performed with the jugular veins of animals, gave the same results, with this difference, however, that the blood coagulated sooner in the veins than in the intestines, under the same temperature. He explains this difference by observing that the heat and carbonic acid of the blood would be transmitted soonest through the thin parieties of the veins. Such circumstances as these, which have been neglected by other experimenters, have probably given origin to numerous misconceptions on the part of authors.

By intercepting a quantity of blood between two ligatures applied around the jugular vein of a living horse, however, he found that no coagulation had taken place at the end of an hour and three quarters; although the same blood coagulated in five minutes after being drawn into a cup. This corresponds with Mr. Hunter's observations upon blood drawn by leeches, and upon the same fluid when accidentally effused into the cavity of the *tunica vaginalis testis.* But this only

proves that while in living vessels the blood is not disposed to coagulate, and the real explanation may be that in such a situation it is not able to part with its carbonic acid.

One of the arguments upon which Mr. Hunter chiefly relied for the support of his opinion, is drawn from the analogies which he supposed to exist between the coagulation of blood and the contraction of muscular fibre. By cutting out pieces of muscle from an animal recently killed, and placing them in basins of water heated to different degrees of temperature, he found that the force and rapidity of contraction was in direct proportion to the heat of the water. To this he compared the apparently similar influence of heat over the coagulation of the blood; and from the comparison he drew as bold a conclusion as any analogy could well justify. Our author, however, has completely destroyed the force of this comparison by proving, as we have already stated, that heat exercises no direct effect upon the natural coagulation of the blood, independent of the extrication of its carbonic acid.

Another analogy upon which Mr. Hunter laid much stress, is that which he believed to occur between the state of the blood, and of the muscles after death. He asserted that in all cases of sudden death, produced by lightning, by blows on the stomach, hard running, &c., the blood would not coagulate, at the same time that the muscles could not stiffen. But Dr. Scudamore's experiments do not corroborate this idea. He killed small dogs and rabbits instantaneously by sudden discharges from a powerful electrical battery, and by large doses of prussic acid; and in every case he found the blood more or less coagulated after death. He insinuates that Mr. Hunter might have been misled by observing "the flow of serum mixed with red globules, giving the appearance of blood not coagulated, when, on closer examination, he would have found the fibrin detached."

Our author performed several experiments to illustrate the influence of electricity and galvanism upon the blood, when out of the body; and found that its coagulation was promoted

by them, at the same time that its temperature was considerably elevated. The electric fluid did not alter the natural arrangement of the blood in coagulating, but the galvanic action produced instantaneous decomposition. These effects he conceives to be altogether chemical, depending on the direct power of imparting heat which belongs to those peculiar agents. They do not, however, particularly affect the doctrine of Mr. Hunter, inasmuch as he never attended to them in his reasoning upon this subject.

But the most direct refutation of the idea above alluded to, respecting an analogy between the contraction of muscle and the coagulation of blood, can be drawn from this experiment of our author. Experiment LXXII.—"By the addition of extract of *Belladonna*, the fibrin formed into a firm clot."

Belladonna is, perhaps, the most certain counter-agent to muscular contraction in the whole materia medica. It produces relaxation in every muscle to which it can be applied. Of late it has been employed to dilate the os uteri, in parturition; and we all know its use in enlarging the pupil for operations on cataract. As, therefore, our author appears to have proved that the same substance exerts an opposite influence upon the coagulating lymph of the blood, he must be allowed to draw the conclusion that there is less analogy between the two processes compared together by Mr. Hunter, than that illustrious physiologist imagined.

On the question whether heat is evolved during the coagulation of the blood, much interest has been excited.—Whenever inanimate fluids become solid, they always give out some portion of their latent heat; on the contrary, the contraction of muscular fibres, although it renders them more solid, does not appear to elevate their temperature. Mr. Hunter, therefore, conceived it important to his theory to decide this question in the negative; and he made no difficulty in concluding, from an experiment which he performed on a turtle, that the blood does not give out heat during its coagulation. Our author, however, has formed an opposite opinion

from the details of Mr. Hunter's own experiment. At the time of performing it, the temperature of the atmosphere was 65°; that of the turtle, as indicated by a thermometer in the anus, 64°; "and that of the blood while flowing. 65°; when collected it was 66°, but it fell to 65° while coagulating, which it did very slowly, and when coagulated it was still 65°."— In commenting upon this experiment, Dr. S. very properly observes, that "the permanency with which the blood maintained the temperature of 65°, is to be attributed to the temperature of the atmosphere; but how is it to be explained that the elevation to 66° should have been attained, if not derived from a change of capacity in the blood itself, while coagulating?" But the opinion of Mr. Hunter, now under consideration, is refuted more satisfactorily by the results of nine different experiments performed by our author under much less unexceptionable circumstances. The blood of warm-blooded animals, in which the temperature is considerably above that of the atmosphere, was selected; and the fact that its coagulation does elevate its temperature, was repeatedly demonstrated. In all the instances wherein the heat was not actually increased by coagulation, the temperature of the blood was maintained for a considerable length of time, notwithstanding the comparative coldness of the surrounding atmosphere. This our author justly considers as a proof of the same circumstance; for he found that a mixture of starch and water, of the same density and temperature with fresh drawn blood, cooled much more rapidly under the atmospheric influence. The doctrine of the vitality of the blood is therefore assailed, instead of being supported by the condition of the temperature which attends its coagulation.

Some interesting experiments were performed by Dr. S., for the purpose of ascertaining the influence of the gases, and various other chemical agents upon the blood. The results were,—

1st,—That oxygen elevated the temperature of the blood considerably, and accelerated its coagulation.

2d,—Hydrogen diminished the temperature slightly, and retarded coagulation; (this experiment, however, was not, in our opinion, satisfactory, for only one of the portions of blood was placed under the air-pump.)

3d,—Carbonic acid diminished the temperature very much, and retarded coagulation; (this experiment is liable to the same objection as the last.)

4th,—Azote gave to the coagulum a dark colour and loose texture; its effect upon the temperature and coagulation were not distinctly marked.

5th,—A saturated solution of sulphat of soda, added immediately to fresh drawn blood, did not altogether prevent coagulation; a weaker solution rendered it a soft uniform jelly, of a florid red colour.

6th,—A saturated solution of sulphat of potash produced a weak uniform coagulation; the colour florid red.

7th,—A saturated solution of borax produced the same appearances.

8th,—A saturated solution of tartrate of soda, prevents coagulation, but the blood thickens; and if a weaker solution be used, coagulation, of a soft jelly-like consistence, takes place.

9th,—A saturated solution of common salt keeps the blood fluid, and of a dark colour; with a weak solution it coagulates loosely.

10th,—Muriate of ammonia produced the same appearances.

11th,—A saturated solution of nitrate of potash keeps the blood fluid; a weaker solution allows of loose coagulation; the colour florid red.

12th,—Diluted muriatic acid, and diluted sulphuric acid, each equally produced a dark pitch-like colour of the blood.

13th,—The medicinal prussic acid did not appear to delay coagulation.

14th,—By the addition of the extract of Belladonna, the fibrin formed into a firm clot.

15th,—The liquor potassæ, in the proportion of twenty minims to the ounce of blood, rendered the blood permanently fluid; the alkali, therefore, appears to act as a solvent of the fibrin.

16th,—Five grains of the sulphat of zinc, dissolved in one ounce of distilled water, produced a thickening of the blood, but not coagulation.

17th,—Sulphat of copper, in the same proportion, produced rather more effect;—a more dense precipitation.

18th,—Sulphat of alum, in the same proportion, produced rather less effect than the zinc.

19th,—Nitric acid, diluted with seven parts of water, produced a very dense precipitation; the blood remained dark in colour.

20th,—A saturated solution of the three salts last mentioned, was added to fresh drawn blood. The solution of alum instantly produced very dense and tenacious coagula; but the other solutions a grumous thickness of the blood. The sulphat of copper had more effect than the zinc.

In commenting upon these experiments, the author observes that "the effect of oxygen gas in elevating the temperature of the blood, very naturally leads us to the theory of animal heat as depending on the combination of oxygen with the blood in the lungs. If the blood out of the body receive sensible heat from its combination with oxygen, may we not consider that the same effect takes place in the lungs?" &c. The experiments of Dr. Davy, published in the Phil. Trans. for 1814, appear to have disproved the captivating hypothesis of Crawford, respecting the production of animal heat; and our author cannot, therefore, be reprehended for thus attempting to advocate the exploded doctrine of Black. The more rapid coagulation of the blood under the influence of oxygen, was, no doubt, owing to the disengagement of carbonic acid, produced by the elevation of temperature; and the slower coagulation under hydrogen and carbonic acid might have proceeded from

the absence of atmospheric air, the oxygen of which is calculated to generate some degree of heat in the blood.

The effects of the different chemical agents on fresh drawn blood, are thus compared with each other:

"The sulphuric acid itself, diluted as the pharmacopœia directs, blackens the blood; but its combinations with alkalies produce a florid red colour. The muriatic acid, free and combined, very much darkens the colour of the blood. The nitric acid, in a free state, caused the blood to remain of its usual dark colour; but combined with alkali, produced a vivid red appearance. It appears that saturated solutions of several of the salts have the property of suspending the coagulation of the blood; but when the necessary quantity of water is added, the coagulating process takes place more or less perfectly." "The trials with the other salts were made in reference to their styptic quality, as depending on their chemical union with the fibrin, so as to form a coagulum."

In discussing the phenomena which attend the extrication of carbonic acid from the blood, our author controverts, very successfully, as we think, the opinions of Sir Everard Home, in relation to the organization of the coagulum. He conceives that the quantity of carbonic acid gas contained in the blood, is too small to form such numerous air channels as Sir Everard imagined that he could discover; and he suggests that the particles of the gas would not evolve themselves in straight or curved lines, but in globules,—such as could assist but little in the subsequent development of blood-vessels.

In summing up the results of his experiments on the *carbonic acid* of the blood, he asserts that he has proved that it not only varies remarkably in the blood of different individuals, but also that it varies in the blood of the same individual at different times of the day. He has frequently heard patients complain of a peculiar sensation of fullness of the veins, as if they were distended with air. When such a case is urgent, not only the veins, but the skin also gives the sensa-

tion of tightness and distention. It appeared to him highly probable, that, under these circumstances, there was an excess of carbonic acid in the blood. He recommends in such cases, to prohibit the use of all liquors which contain fixed air; and says, "we may extend this prohibition to persons suffering from fullness of habit, or any condition of the vessels in which it is of importance to counteract congestion of blood, or distension of the blood-vessels in any part of the system." Dr. Baillie, in attempting to account for a singular case of spontaneous emphysema, was driven to the supposition that the air must have been generated in the blood-vessels themselves, and thrown out in the form of a secreted fluid into the cellular membrane. If he had been aware of the fact, which has since been substantiated by our author, he would no doubt have considered his theory much more complete.

The following practical observations are so judicious, that we extract them at full length:

"In the examination of the blood in venesection, the practitioner must direct his attention to several circumstances, amongst which the following may be mentioned as the principal: the kind of orifice; the stream in which the blood flows; the state of the pulse during the bleeding; the apparent density, colour, and other appearances of the blood on its being received into the basin; the time in which it coagulates; the external appearance of the coagulated blood; the texture of the coagulum; the comparative conditions of the several portions of blood in different cups; the appearance and quality of the serum.

"The mode of coagulation is materially influenced by the kind of stream, which of course depends chiefly on the orifice made in venesection. When it flows slowly, the coagulation takes place so soon, that the fibrin unites itself with the red particles very uniformly, and therefore does not present any appearance of the buffy coat, unless the blood be remarkably sizy. I cannot, however, refrain from taking notice of a more important point, as regards the stream of blood, namely, its remedial influence on disease. In venesection for the relief of inflammation, our object

is not simply to diminish the quantity of circulating blood, but to diminish the action of the heart; and it may be affirmed that twelve ounces of blood, drawn so quickly as to produce an immediate and decided effect on the pulse, will prove much more useful than a considerably larger quantity stolen away so slowly that the heart accommodates itself more easily to the loss. In a case of plethora, or apoplectic congestion, the same reasoning does not apply, because the absolute quantity of blood to be drawn is more to be considered."

Our limits will not permit us to extend this analysis of the interesting reflections of Dr. Scudamore upon the subject of venesection, to a greater length: we pass on, therefore, to give a short account of his observations upon the use of a *saturated solution of alum* as a styptic to bleeding vessels. An artery of considerable size in a dog was laid open, and bled vehemently. In comparative trials, our author used saturated solutions of acetate of lead, sulphat of copper, sulphat of zinc, and of pure nitrat of silver; tincture of galls, nitric acid diluted, and Ruspini's styptic, without checking the hæmorrhage. On pouring the alum solution on this vessel, he was "equally surprised and gratified to witness, that in about a quarter of a minute the bleeding entirely ceased; and that it was thus effectually restrained by means of the tenacious coagulum so promptly formed, operating as a plug to the mouth of the vessel, was proved several times by sponging away the coagulum, seeing the violent renewal of the hæmorrhage, repeating the application with perfect success, and so on."

In several cases of wounds, hæmorrhoids, &c. he has had opportunities of witnessing the same power of this remedy over hæmorrhage.

In cases of menorrhagia, especially of the passive kind, he apprehends that an injection of the same solution would be attended with the most important advantage; and under certain circumstances of hæmorrhage, after delivery and the removal of the placenta, he thinks "it will promptly prove a remedy for a state of imminent danger, when other means

would probably fail." He recommends the injection to be used tepid; while, at the same time, cold may be applied externally to the abdomen in the usual manner.

He does not claim any credit for the use of alum as a styptic, but merely for the introduction of it in the form of a saturated solution.

He has met with some opportunities of giving alum internally. In a case of hæmoptysis, and in another of hematemesis, it succeeded perfectly. In each instance the hæmorrhage ceased entirely after the administration of a few doses of the medicine.

We cannot conclude this review without acknowledging our obligations to the author for much new and useful information, which we have derived from a perusal of his pages. We consider this work as an important contribution to physiology; and feel confident that a republication of it in this country would be a benefit to the profession. M.

ART. V.—*Essays on Fevers and other Medical Subjects.* By THOMAS MINER, M. D, and WILLIAM TULLY, M. D. Middletown, Connecticut. E. and H. Clark, 1823; 8vo. pp. 484.

IT is impossible to read this book, without feeling some degree of disgust and mortification at the disrespect and contempt which the authors evince, in almost every page, for a great majority of their medical brethren. There runs throughout the whole work, a strain of invidious and ungracious remark, which we cannot but condemn as offensive, unbecoming, and injurious to the dignity and interests of the profession. Were we to receive our impressions from the authors of this book, we should be led to regard the generality of physicians as deplorably ignorant, rash, and incompetent. The epithets of ignorant, prejudiced, mad, barbarous, malevolent, and temporising, are dealt out with a prodigality which we should not expect from one who cultivates and practices a liberal profession. Notwithstanding all this, however, we

are quite ready to confess that there are many sound, practical, lessons taught in this book, and that on several important points of pathology and practice, we fully concur with the authors.

The first essay in this volume, is "*On the Resolution and Treatment of Fevers,*" by Dr. Miner. The author's object, in this essay, is to show that, contrary to the opinions of some eminent practitioners, fevers, when once formed, do not necessarily run on to their natural termination, but that they may frequently be arrested, or "cut short" in their course by a judicious treatment in their early stage. "By far the most prominent obstacle," says Dr. M., "to improvement in practice, is the opinion which has had too much influence ever since the days of Hippocrates, that every fever must run its course; that it can neither be broken up at its access, shortened in its duration, nor have its symptoms materially mitigated by the interference of art." In the preceding number of this journal, we have expressed our sentiments on this subject, in the review of Dr. Smith's essay on typhous fever; and we merely remark in this place, that there is no point of practical doctrine of the truth of which we are more fully persuaded, than of the practicability of occasionally arresting or shortening the duration of fevers. Upon this subject our sentiments are fully in accordance with those of Dr. M.; and we are no less ready to acknowledge our confidence in the plan of treatment which he recommends as the most effectual way for arresting the progress of fevers in their early stage. "*Slow and moderate purging with calomel,*" during the first stage of fevers, constitutes the essential feature of our author's practice. "This is the only one," he says, "of all the common devices for breaking up fevers at their access, which in my practice has been attended with any degree of certainty. The calomel mixed with any mild syrup, but not in the form of pill, should be administered in *small doses*,—from two to five grains every two or three hours, according

to the circumstances of the patient, till sufficient catharsis is produced. If possible, the calomel should be given in such doses, and at such intervals of time, as to be retained in the stomach and bowels twelve hours, before it produces the operative effect. But if catharsis does not take place in eighteen hours at farthest, it must be assisted by castor oil, or some other mild vegetable purgative. At the same time, it is proper to pursue a moderate diaphoretic regimen, such as pediluvium, tepid aromatic, and diaphoretic drinks, fomentations and sinapisms, or epispastics, as the local symptoms require."

In cases attended with diarrhœa, or where the calomel passes too rapidly through the bowels, the author advises a "single medium cathartic dose of calomel, with a sufficient quantity of opium to stay it, at least, for twelve or fifteen hours." Although it is only in the incipient stage of the disease that this plan of treatment is especially effectual in arresting its progress, yet it will sometimes succeed, says the author, in effecting a resolution of the fever even after it is completely formed. It is evident, as the author observes, that the peculiar advantages of this practice do not depend merely on the purgative effect of the calomel, but mainly, no doubt, on the general specific influence of the medicine on the system. We have ourselves often employed calomel in the *early* stage of typhoid and bilious remittent fevers, both with a view to its purgative and specific operation, and in many instances we have noticed that as soon as the constitutional impressions of the medicine became visible, the disease readily yielded. Useful as a moderate mercurial action, in connexion with gentle catharsis and other antiphlogistic means is, in the incipient period of fever, yet we have more than once observed the fact mentioned by the author, that calomel, given in the latter stages, so as to produce its specific impressions on the system, has a tendency to aggravate the disease, and to render convalescence tedious and troublesome. In the congestive form of fevers, calomel is a remedy of great value. Dr.

Armstrong observes, in relation to its efficacy in cases of this kind, that he had for a "long time overlooked one of the principal effects of calomel in congestive fever, and that it was at last only forced upon him by patients almost invariably recovering with rapidity when ptyalism was excited. The power which calomel has in equalizing the circulation, is no where more conspicuously displayed than in diseases of a congestive character. Before its exhibition the skin will be cold, wan, and shrunk, the pulse feeble or oppressed, and the whole system apparently relaxed, but as soon as the mouth is made sore from its influence, the skin becomes warm, reddish, and distended with the vigorous circulation, while the pulse is full, soft, and strong, and the general energy, in a great measure, restored. The liver is intimately concerned in the pathology of congestive fevers, and for the first day or two the alvine evacuations from calomel, will commonly be found either as dark as tar, or whitish and slimy; but they speedily become natural when ptyalism takes place, and a copious secretion of bile almost invariably augurs a favourable issue." (*On Typhus Fever, p.* 167.)

In endeavouring to bring about a resolution of an incipient fever, it is by no means necessary, or even proper, to produce *ptyalism;* all that is required for this purpose, is a slight general mercurial impression. "The cupreous taste, the slightest swelling of the gums, or sloughy whiteness, or erosion of the margin, and soreness of the teeth, the most moderate degree of the peculiar fleecy appearance of the tongue, and fetor of the breath, which are among the first visible effects of mercurials, will be amply sufficient." This is, however, not all that is necessary for the complete removal of a fever. As soon as the morbid action is changed, and the disease broken up by the influence of the calomel, recourse, says the author, should be immediately had to *tonic remedies,* and the calomel be discontinued. If, says he, the mercurial be continued through the course of the disease, as

is often done, it is apt to produce "an *artificial state*, in many instances as unmanageable as the original affection."

If, after all, we fail in "breaking up" the disease during the first few days, it then becomes necessary to bring the system gradually to a proper state for the administration of tonics, by "the remaining *preparatory* treatment.

"Whatever may be the opinion, says Dr. M., "with respect to *critical* days, it is certain that all our late typhoid fevers have very regularly observed *weekly* critical periods. It is an old and very just remark, that in all *regular* diseases of this description, they are generally but little benefitted by the *bark*, and articles of a similar tendency, till after a prominent, critical, or semicritical change: that is not until morbid irritability of the stomach and bowels on the one hand, or torpor on the other, is overcome, local pains and other urgent symptoms relieved, and some time in every twenty-four hours at least, the tongue is moist, and the skin and other excretories are free. There are various means which are adopted for the purpose of producing this particular state of the system. This kind of crisis, however, by the usual management, does not generally take place until the end of the second week, when the patient is too frequently so much exhaused, that tonics are apt to produce very little effect, or the system is still so irritable that they cannot be borne at all. But it very certainly occurs, at the end of the first week, and occasionally some days earlier, especially in the more severe and rapid cases, when the following *alterative course* or plan of preparation, in addition to the efforts already made in the attempt at *breaking up* the disease, is properly executed."

This plan of preparatory treatment consists, according to the author, in the cautious administration of *small* doses of calomel, in combination with opium, and, where the skin is dry, ipecacuanha, during the first week. When by this treatment "a partial crisis, or semicritical change," is effected in the disease, "we must immediately enter on the supporting course, and except in a few obstinate cases of local inflammation, instantly suspend the calomel."

"This compound of calomel, opium, and (when necessary) ipecacuanha," says the author, "in order to produce its full effect, should be given at *short* and *regular* intervals, so that the system may he *constantly kept* under the combined effect of the whole of the articles. Each succeeding dose, therefore, must be administered a little time before the effect of the preceding has ceased.

"Before dismissing the subject of calomel, it is necessary to enforce one important point with respect to the administration of this article, viz:—That there is no certain dependence to be placed upon its use, either as a slow and moderate cathartic, or as an alterative, unless the patient will submit to an appropriate diaphoretic regimen. He must confine himself to bed; and, at the same time, use tepid, aromatic, and diaphoretic drinks, light liquid food, such as broth, milk porridge, arrow-root, or the lighter vegetable and animal, mucilaginous and gelatinous, preparations. Pediluvium, or warm bathing, sinapisms, and, in many instances, epispastics are indispensable auxiliaries. There can be no exceptions to this regimen, unless in the extreme hot cases of putrid fever, and in violent synocha."

The remainder of this essay is devoted to the consideration of the proper course to be pursued in the latter periods of fever; and of the value and mode of employing tonic remedies after the preparatory, or what, according to the author's method of cure, may be called the mercurial treatment, is over. Dr. M. is decidedly in favour of a tonic course of treatment after the morbid action has been changed by the use of calomel. In taking leave of this essay, we may remark, in a general way, that it contains a great deal of what we deem sound doctrine, and important practical observation. We are at the same time compelled by the duties of our function to declare, unreservedly, that the tenor of reproachful observation, and of violent and spiteful condemnation, which is kept up throughout its whole extent, operates powerfully to do away its respectability and usefulness.

The second essay in this volume is entitled: "*Medical authors are rarely practical physicians.*"—Dr. Miner seems

to have but a poor opinion of the majority of medical authors. He thinks that "the generality of the books which we read, and of the systems which are taught, are fifteen or twenty years *behind* the actual improved state of medical science:"—and the reason, as he alleges, is, that "most medical publications are either the speculations of the young, who lack employment, or the *recollections* of men who have, in a good degree, retired from business, or the theories of professors, who sit at their ease in the academical chair."

That many books are published by writers who are not practical physicians, is certainly true, but we are by no means willing to allow that the majority of publications, professedly practical, come from men not practically conversant with diseases. Works written by *young and inexperienced men*, and "theoretical professors," may in general be of little value as practical guides; but we see no justice in the disparagement which the author casts on "the *recollections*" of those who, after a long course of practice, retire from business, and publish the result of their abundant experience. Books that emanate from sources of this character, are, in fact, commonly the most valuable treasures of our literature. The observation of our author, that the information which books of this kind contain, is, for the most part, many years behind "the actual state of medical science," is not correct, as a general remark, and proceeds, as we believe, from an erroneous notion of the nature of medical experience, and the true advancement of our science. The progress of practical medicine is far from being so rapid, that the result of experience, published by a veteran physician on his retirement from practice, will be far behind "the actual improved state of medical science, in the short period of eighteen or twenty years." He who has perused, with proper attention, the old standard works of our profession, will, we apprehend, confess, that, although on many points of pathology and practice we have grown wiser than our forefathers, yet we are nevertheless often reminded, in their writings, of old truths, ne-

glected for the novelties of the day, and of modes of practice which it would be our interest to adopt and to cherish.

It is quite evident from this essay, that, although the author by no means lacks confidence in himself, he is, nevertheless, abundantly sceptical as to the merits of others. According to him, age is too timid, youth too modest, and "learned professors" too speculative, to expect from them a plain, open avowal of their sentiments, and an unvarnished statement of their experience. Added to this, he thinks that authors are too fond of popularity to *offend* by proposing new and unpopular opinions; or too much under the ban of *reviewers* to venture "to publish facts and observations in opposition to those which are generally received." Through the multitude of reasons which he gives us for distrusting the statements and opinions found in the majority of medical publications, we cannot but perceive how well the author is satisfied with his own intrepidity and sagaciousness,—a persuasion which, by the bye, we have no right to censure, except as it shows a self-sufficiency on the one hand, and a contempt on the other, which, to say the least of it, is by no means calculated to conciliate the respect and confidence of others.

In the third essay, the author treats of "*The diseases on the river Connecticut.*" "An *accurate* history," says the author, "of the epidemics which have appeared within the last fifteen years, on the Connecticut, from its mouth to the boundary of Massachusetts, would give more light on typhoid diseases, than all that has hitherto been published on this subject from the age of Hippocrates." Since the year 1807, fevers of a pure sthenic character have been exceedingly rare in Connecticut. From that period, when an influenza, "more universal than any within the memory of man, prevailed, and which was of the most decidedly asthenic character," all the acute diseases on the Connecticut, "have been asthenic, and progressively increasing in the severity and irregularity of their character."

"Our modern fevers," says, Dr. M., "assume every imaginable form and degree of violence and irregularity; from the influenza, which frequently admits of patients attending to their ordinary business,—to the spotted fever, which sometimes destroys life in six hours. They all, however, agree in *one* particular point, the *absence of the strong—hard pulse.* They all, likewise, agree in their *general* mode of treatment; an alterative, diaphoretic, exciting and supporting course; varied indeed, according to the symptoms, from the infusions of thoroughwort, hops, and chamomile, or wine-whey, on the one hand, to opium, alcohol, cantharides, arsenic, oil of turpentine, capsicum, and phosphorus on the other. The difference in the severity, violence, and rapidity, in different towns, and in different seasons, is extreme. In some seasons our fevers are so mild, that almost every one will recover under moderate treatment; in others the utmost decision and vigilance in the treatment are demanded, and after all there will be a number of unsuccessful cases. No one, however, can well realize their *typhoid* nature without *having seen them.* Nor can the speculations of strangers or occasional visitors, avail against uniform experience."

A corresponding change in the prevailing diathesis of febrile diseases, has, we believe, been noticed during the period referred to, throughout, perhaps, every section of this country. Nothing is more common than to hear our old practitioners say, that fevers do not now admit of the active depletory measures which were necessary during the latter period of the last and the few first years of the present century. *Wolfart*, a German writer of eminence, has attempted to account for the gradual conversion of the sthenic into the asthenic diathesis, by the changes wrought in the human constitution by the influence of climate, education, government, and above all, customs and modes of living, and the increasing and enfeebling power of luxury and sensual gratification in every shape. These causes, as they evidently tend to diminish the physical energies of the human body, must, as he believes, necessarily give to its diseases a correspond-

ing character of weakness. We are not prepared to adopt this doctrine in its full extent, but there can scarcely be a doubt, that something at least is contributed in this way to the phenomenon in question.

The fourth essay of this volume is entitled, "*Fallacy of popular reports on Medical subjects.*" In this essay Dr. Miner makes some additional remarks on his peculiar practice, lest, as he observes, he should be misunderstood, "or have his opinions wilfully misstated." After the preparatory process is accomplished by moderate purging with calomel, "the ordinary cases of regular nervous fever," he admits, require only "a light and moderate, though uniform support of wine, cinchona, and small doses of opium."

"But where the powers of life, from the *original* malignity or severity of the disease, or from previous neglect or mismanagement, either by the physician, patient, or nurses, are almost exhausted,—the last drop of oil nearly burnt out,—and the expiring wick only glimmering in the socket,—as long as there is sufficient excitability remaining for medicine to act upon, that physician is a murderer who stands by, and does not make the strongest exertions, with the most efficient articles. In such extreme cases I do not hesitate to advise cantharides, capsicum, alcohol, mineral solution, oil of turpentine, or even phosphorus, and, in a word, the combined action of several of the most highly exciting and tonic articles in the materia medica."

There can be no doubt of the correctness of this practice, but there is certainly nothing peculiar in it to Dr. M. We apprehend every man of common sense would stimulate,—and that too as vigorously as possible, in cases "almost exhausted,—where the last drop of oil is nearly burnt out,—and the expiring flame only glimmering in the socket." We can inform our author, that even in this city, notwithstanding the "*ignorance*, *rashness*, and *barbarity*" of some of its most eminent physicians, this practice is pursued as the only one which common sense and experience dictates in cases of this kind.

Medical Facts.—This is the title of the fifth essay. The author censures physicians, and perhaps justly, for not reporting their unfortunate cases. He asserts that he has lost but four cases of typhoid fever during the period of eight years. This is certainly a very small number, and must be regarded as strong evidence in favour of the excellence of the practice which he pursues, a practice to which we give a decided preference.—The author states that he has never seen a case of acute disease, in which mercury, whether employed internally or externally, has produced any "*permanent ill effects.*" He is a determined foe to the lancet, and the whole array of antiphlogistics. He condemns, positively, the opinion entertained by some, "that there is some *truth* and some *mistake* on either side,"—namely, the antiphlogistic and tonic plans of treating typhus. "The fact is," says he, "that no compromise is admissible." We are nevertheless fully persuaded that there *is* some "truth and some mistake on either side," in relation to these two modes of treating typhoid fevers. Ready as we are to accede to the paramount excellence of the alterative plan in the commencement and the supporting treatment in the latter stage of fevers of this character, we are not the less willing to acknowledge, that in the beginning of the disease, antiphlogistic remedies, properly so called, and even bleeding, may be sometimes employed with decided benefit. Our author vituperates those who show too much dread of the employment of tonics and mercury, and we think that he is equally liable to censure for his unqualified condemnation of the opposite class of remedies.

Chap. VI. *On Spotted Fever.*—The author's object, in the present chapter, is to show that evacuations of all kinds, except diaphoresis, by stimulating applications, are injurious in this rapid and deadly disease, and that no time is to be wasted "in useless preparation, but immediate recourse to be had to the most decided counteracting and supporting course from the very access."

Spotted fever, according to Dr. M. "belongs nosologically to the passive phlegmasiæ of the brain." No spontaneous reaction, he says, takes place in this disease.

"By an energetic, exciting treatment, at its access, this disease is frequently broken up within twenty-four hours. When we fail in producing a resolution, and only make such an impression as to moderate the violence of the symptoms, it usually continues seven, or in some instances fourteen days, requiring the same course of practice, according to the urgency of the symptoms, as is demanded in the supporting stage of typhus."

Excessive sweating is not to be encouraged, although a strict attention must be paid to the support of the proper temperature of the body by the application of external heat, frictions, and fomentations. *Morbid* sweating is sometimes found to attend this disease throughout its *whole course.*

Essay VII. *On Experience.*—This is a very confused chapter. It contains some good observations, mingled up with a great deal of invidious remark and dashing censure: The author speaks fluently of the ignorance, rashness, and stupidity of physicians. He thinks "that a prominent cause of the *deterioration* of medicine in the United States is the combination of the two professions,—physic and surgery." Surgeons, he says, are generally deficient "in the discrimination of diathesis, type, crisis, pulse, stage, and temperament;" they are almost "inevitably led to adopt and rely upon a mere succession of individual *dashing* and desultory measures." In Europe the practice of physic, according to Dr. Miner, seems to be in a state of utter confusion. "Judging from the writings of Hamilton, Hey, Clutterbuck, Johnson, Welsh, and Armstrong, and most of the periodical works, modern physicians appear to be guided by no definite rules of practice in acute *diseases.*" "They appear to have lost all accurate knowledge of *type*, temperament, and *diathesis;* of the distinction of *active* and *passive* inflammation; of the

difference between *inflammation* and *irritation;* between the *quantity* and the *quality* of diseased action; or between irritability and torpor." They waste the vital fluid "by *gallons*," are ignorant of the true powers of some of the most useful medicines, and, in a word, of every thing which Dr. Miner, and his partizans, appear to know so well.

We cannot help remarking, by the way, that while our author is thus earnest in pointing out the deficiency of modern practitioners, and in exposing their unbounded rashness, he is far from showing any diffidence of his own judgment and practical abilities. In *his* hands nothing is more manageable than *incipient* consumption. He is astonished at the large proportion of deaths from this disease in the populous cities of our country, and he ascribes it to the "reducing plan of treatment" which, he asserts, is so generally adopted by our practitioners. With calomel, opium, sanguinaria, and a suitable course of mineral tonics, he finds no difficulty of curing the disease in its incipient stage. With these remedies he asserts "that he has never failed of curing the complaint in more than *one* instance." This success is certainly very extraordinary; so extraordinary indeed, that we must ask the author's pardon for being inclined to doubt the accuracy of his diagnosis.

The remaining essays of this volume, by Dr. Miner, are devoted to the consideration of the pulse; stage of fevers; type of fevers; crisis and critical periods; diathesis; counteracting and coinciting agents. We have not room to enter into a particular analysis of these chapters, all of which, however, are interesting, and replete with judicious observations. In relation to the small, quick, and hard pulse, the author observes:

"The frequent, quick, small, and hard, or wiry pulse, though too frequently considered as indicating a phlogistic state, denotes nothing more than the addition of *irritation* to exhaustion. This pulse is often found in sub-acute pneumonia, phthisis, sub-acute

rheumatism, idiopathic, hectic, putrid, and yellow fevers, when they have been injudiciously managed."

In speaking of the combination of quickness, smallness, and hardness, in the pulse, as connected with active gastric and enteritic inflammation, the author remarks:

"It is to be feared that the almost universal prevalence of the idea, that these *inflammations* are *necessarily* attended with this pulse, has prevented all investigation of diathesis in these diseases, and consequently led to discriminate practice. Suffice it in this place to say, that genuine asthenic inflammations of the stomach and intestines do *actually* exist, which do not require an antiphlogistic treatment, and which recover with much greater certainty under a different management."

In the chapter on the "stage of fever," Dr. Miner makes the following observations in relation to the employment of calomel in irregular or malignant epidemics:

"In irregular or malignant epidemics, much decision and caution are required in the administration of calomel, or it is of no avail. Where there is an early moderate determination to the brain, the patients reluctantly submit to the proper regimen. In this variety calomel, in full doses, must be combined with opium, sufficient to prevent its having any more than a laxative operation. The mouth is to be touched as early as possible, and the mercurial action is to be resolutely continued till a manifest sub-critical change supervenes. Rapid cases require a still more decided course of calomel and opium, or the calomel is worse than useless. The *instant* a sub-ptyalism is perceived, tonics and excitants must be efficiently prescribed.

We must refer the reader to the book itself for many excellent observations on "the type of fevers," on "crises and critical periods," and on "diathesis." That Dr. Miner is an able physician, and an accurate observer of diseases, is abundantly evident in these chapters. Notwithstanding the censures which we have been reluctantly obliged to pass on the

intemperate observations of our author, we do not hesitate to say, that, in our opinion, this book contains much sound practical information. That there are points of pathology and treatment recommended in it, which might be fairly, and we think successfully contested, must indeed be affirmed; but in the leading doctrines, both practical and pathological, advanced by Dr. M., we freely confess our entire confidence.

Want of room obliges us to postpone our remarks on Dr. Tully's part of this work. We will merely observe that Dr. Tully has indulged less in those obnoxious observations on the opinions and practices of others, which are so offensive in the essays of his colleague. In our next number we shall devote some pages to Dr. Tully's portion of this volume. E.

Art. VII.—Dr. E. L. Jourdain *on the Yellow Fever of Port du Passage.*

In the number of *Annales de la Medicine Phisiologique*, edited by Dr. Broussais, for December 1823, Dr. E. L. Jourdain, chief physician of the military hospital of Daxhas, published a very interesting paper on the yellow fever which prevailed at Port du Passage during the months of August and September, 1823. This port is situated at seven leagues east of Bayonne, one league west of St. Sebastian, and at two leagues south-west of Ernani. It is one of the finest in Europe, though at present considerably neglected. It is well fortified by nature and art, and covered towards the land by high mountains and rocks. The bay, which is large, and on which are situated several villages, communicates with the sea only by a small passage situated between two rocks, and affording passage but to one vessel.

The Passage is a small town, divided into two parts by the canal which forms the entrance of the bay. The Eastern portion of the town, called at present St. John, is that in which the yellow fever reigned. It consists of one street

only, which occupies the whole extent between the bay and the eastern mountains. This street runs from north to east, —and after forming an angle runs from east to south. It is very narrow in some parts, not exceeding four or five feet in width.—The houses, which do not amount to more than one hundred and twenty-five, are small, obscure, and ill ventillated. Those placed against the mountain are more especially so, and for the most part have no privies. The houses situated near the canal are larger and cleaner.

The population of St. John is, in general, eight hundred; though at the time of the appearance of the yellow fever, it amounted to three thousand, owing to the emigration there from St. Sebastian.

Notwithstanding some insalubrity, Dr. Jourdain says that St. John is represented to be the healthiest spot of that part of country; acute diseases being rarely met with, and consisting of catarrhal affections in winter, and simple bilious fevers during the summer months.

The disease appears to have been introduced into this place by a vessel from Havana. The detail of this introduction we shall give in the language of Dr. Jourdain. "The *Donostierra* left Havana the beginning of June, with twenty-one men on board, including the captain and five passengers; —the cargo consisting of sugar, coffee, tobacco, yellow wax, a barrel of honey, and a small box of preserves. Ten or twelve days after the departure of the vessel, one of the sailors died; his death was attributed to a fruit called in the country pina, of which he had eat a large quantity, and to the brandy of sugar-cane, which he drank to great excess. A few moments after his death, he discharged by the mouth a large quantity of froth.

After a passage of thirty-five days, the vessel touched at Corona. The captain reported this event to the medical junta, in consequence of which the vessel was ordered to quarantine ten days. At the expiration of this time, the vessel proceeded to St. Ander;—remained six days in that port, and

intemperate observations of our author, we do not hesitate to say, that, in our opinion, this book contains much sound practical information. That there are points of pathology and treatment recommended in it, which might be fairly, and we think successfully contested, must indeed be affirmed; but in the leading doctrines, both practical and pathological, advanced by Dr. M., we freely confess our entire confidence.

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In the number of *Annales de la Medicine Phisiologique*, edited by Dr. Broussais, for December 1823, Dr. E. L. Jourdain, chief physician of the military hospital of Daxhas, published a very interesting paper on the yellow fever which prevailed at Port du Passage during the months of August and September, 1823. This port is situated at seven leagues east of Bayonne, one league west of St. Sebastian, and at two leagues south-west of Ernani. It is one of the finest in Europe, though at present considerably neglected. It is well fortified by nature and art, and covered towards the land by high mountains and rocks. The bay, which is large, and on which are situated several villages, communicates with the sea only by a small passage situated between two rocks, and affording passage but to one vessel.

The Passage is a small town, divided into two parts by the canal which forms the entrance of the bay. The Eastern portion of the town, called at present St. John, is that in which the yellow fever reigned. It consists of one street

only, which occupies the whole extent between the bay and the eastern mountains. This street runs from north to east, —and after forming an angle runs from east to south. It is very narrow in some parts, not exceeding four or five feet in width.—The houses, which do not amount to more than one hundred and twenty-five, are small, obscure, and ill ventillated. Those placed against the mountain are more especially so, and for the most part have no privies. The houses situated near the canal are larger and cleaner.

The population of St. John is, in general, eight hundred; though at the time of the appearance of the yellow fever, it amounted to three thousand, owing to the emigration there from St. Sebastian.

Notwithstanding some insalubrity, Dr. Jourdain says that St. John is represented to be the healthiest spot of that part of country; acute diseases being rarely met with, and consisting of catarrhal affections in winter, and simple bilious fevers during the summer months.

The disease appears to have been introduced into this place by a vessel from Havana. The detail of this introduction we shall give in the language of Dr. Jourdain. "The *Donostierra* left Havana the beginning of June, with twenty-one men on board, including the captain and five passengers; —the cargo consisting of sugar, coffee, tobacco, yellow wax, a barrel of honey, and a small box of preserves. Ten or twelve days after the departure of the vessel, one of the sailors died; his death was attributed to a fruit called in the country pina, of which he had eat a large quantity, and to the brandy of sugar-cane, which he drank to great excess. A few moments after his death, he discharged by the mouth a large quantity of froth.

After a passage of thirty-five days, the vessel touched at Corona. The captain reported this event to the medical junta, in consequence of which the vessel was ordered to quarantine ten days. At the expiration of this time, the vessel proceeded to St. Ander;—remained six days in that port, and

next directed its course to the Port of the Passage, where it arrived on the second of August, at 7 o'clock in the morning. It was anchored near the little place called De la Piedad, situated in the centre of the town. The crew was in good health.

The vessel was unloaded on the sixth of August, and on the nineteenth carpenters were employed to rebottom it. The first individual attacked with the disease was Manuel Ali, the custom-house officer, who had slept several nights on board.—He was taken on the fifteenth, and died on the seventeenth, with all characteristic marks of the yellow fever.

The carpenters were soon all affected with the same disease, of which the greater number died. On the twenty-third and twenty-fourth of August, two women, who had communicated with the vessel during the week, and who occupied the house nearest to it, took sick and died, one on the twenty-fifth, the second on the twenty-sixth.

From this moment the disease spread to all the houses in the vicinity of the vessel, this latter being evidently the source of the infection. Dr. Jourdain does not think the infection could be referred to the cargo, but to the interior of the vessel itself; because it was only when its right side was opened that the disease appeared. Ali, it is true, died before this operation was performed, but from the nature of his office, he was obliged to visit every part of the vessel, and was therefore exposed to inhale all deleterious vapours found in the interior of the vessel, even before the part which contained them was opened. The vessel appears to have been rotten. It had been on the coast of Africa three or four years before, and had had negroes on board.

There does not appear to have been any case of contagion during the prevalence of this disease, every individual having taken it in the place of infection, either on board of the vessel, or in the houses situated in its immediate vicinity. Dr. Jourdain, however, is of opinion, that a surgeon and two grave-diggers took it from handling the bodies of those who

had died of it;—but as they had, in all probability, visited the infected district, it is difficult to decide satisfactorily this question. No individual affected with this fever, and transported to the neighbouring villages, or in the other parts of the town, communicated it to those around them.

This account is interesting in as much as it proves that a vessel in a filthy condition may, when placed under circumstances favourable to the development of the yellow fever, become a source of infection; a fact which many of our antagonists have almost invariably neglected to notice, when endeavouring to demonstrate the importation of this disease.

But this paper is also important in a practical point of view. Dr. Jourdain gives us a table of the patients,—containing the principal symptoms, treatment, issue, and post mortem examination. It results from this, that there were eighty-five cases, of which sixty-one were cured, and twenty-four died, not including several who took the disease in the infected spot, and died in the neighbouring villages.

Dr. Jourdain's observation tends to prove some of the propositions of the physiological school of France, of which he appears to be a disciple. He remarked: 1st,—That the greater number of patients, although violently affected, and presenting the most alarming symptoms, retained to the last their muscular strength. 2d,—The yellow colour of the skin invariably increased after death. 3d,—General bleedings were fatal in the greater number of cases. 4th,—Emetics invariably aggravated the disease, especially when administered in the beginning. 5th,—Irritating glysters of salt and vinegar were hurtful. 6th,—Soothing, mucilaginous and emolient substances, were beneficial as drink, glysters, cataplasms, or fomentations. 7th,—Oleaginous substances were advantageous. 8th,—Leeches, when applied in great numbers, in the beginning of the attack, or the epigantric region, invariably arrested the progress of the disease, but very often they were only applied in small numbers, or else after the use of dangerous means, such as general bleedings, or emetics. 9th,—

External stimuli, such as sinapisms and blisters, were very useful in the second period of the disease, as powerful resultives. 10th,—Internal stimuli and barks were not employed by any of the physicians who treated this disease in this plan, being all convinced that it was a disease more or less inflammatory.

ART. VIII.—*On Dislocations of the Vertebræ of the Neck,* By PH. V. WALTHER.*

CASE 1.—In July, 1819, a child, aged three years and a-half, was brought to the Polyclinic Institute, with dislocation of the two lower oblique processes of the third or fourth cervical vertebra. Thirty-six hours before it was seen by Dr. W. the child was taken by the head and raised perpendicularly from the floor, in which position it was held about a minute and a-half, struggling and screaming violently. When it was put to the floor again, its head stood backwards so as almost to touch the part between the shoulder plates. In this position the head remained immovably fixed. The child, when brought to the institution, complained of pain in the head and neck. There was no disturbance of the respiratory function; nor did the little patient experience any material difficulty in swallowing. Dr. Walther was surprised to find that although manifestly a case of dislocation of one of the cervical vertebra, there was not the least difficulty of breathing or paralysis present. Dr. W. immediately proceeded to reduce the dislocation. The child was held up in a horizontal position by three strong assistants. One of them made counter-extension by a firm hold of the hips; the second held the shoulders back and supported the body of the child; the third laid hold of the head and made extension, at first in the direction of the dislocation, and afterward in the natural direction of the neck. In doing this, he at first, while applying

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* Journal fuir Chirurgie und Augenheilkunde. Von Dr. E. Graefe un Dr. P. J. V. Walther.

the extension, pressed the head slightly backwards, and then gradually increasing the extension, brought it by degrees to its natural position. In this manner the dislocation was reduced in the first attempt; the head again stood erect, and the patient could immediately move it freely in every direction.

Case 2.—A carpenter fell from a high scaffold. He struck the hard ground with the back of the head. He remained dead on the spot; not the slightest motion of his limbs having been observed by those who were present. Twenty-four hours afterwards his body was dissected. The medulla oblongata was found torn off about two lines below its exit from the cavity of the cranium. The retracted ends of the divided cord, were separated several lines. There was no effusion of blood into the cavity of the spine.

Case 3.--Gilsdorff, aged twenty-one, while driving an empty cart, fell, and one of the wheels went directly over the back of his neck. He was taken up and carried into a house; the surgeon who was first called in, pronounced the injury slight, and of no serious consequence, regarding his inability to move his extremities as the effect of excessive fright. Another surgeon, however, who afterwards saw him, formed a more correct opinion of the nature of the injury, and had him sent to the surgical institution on the third day after the accident. *Symptoms.*—Paralysis of the upper and lower extremities; in the lower the paralysis was perfect with anaesthesis; in the upper the sensibility remained as usual. There was, also, paralysis of the abdominal muscles, with weak and stertorous respiration, retension of urine, involuntary stools, and a strong and irregular pulse. Neither stupor, delirium, vomiting, nor hiccough was present. He was entirely free from pain, nor were his sight and hearing in the least affected. He was freely bled, leeched over the tract of the spine, &c. &c.; but all to no advantage. He died on the night after he was brought into the Institute.

On dissection the fifth and sixth cervical vertebra were found to be separated from each other several lines, and the

capsular ligaments, as well as the ligaments between the arches and spinous processes of these vertebræ were torn off. There was a coagulum of extravasated blood between the dura mater and the bony cavity throughout its whole extent. The spinal marrow immediately under the third and fourth cervical vertebræ was lacerated. In this situation, also, the pia mater, on the left side, was torn, and a small portion of the medullary substance protruded. A coagulum of blood was here found between the pia mater and the spinal marrow.

There can be no doubt, observes Dr. W., that in the first of these cases there was dislocation of one or more of the cervical vertebræ. In relation to the cause by which it was produced, this case coincides entirely with the one related by *Petit*, where a child raised perpendicularly and held for a short time suspended by its head, immediately expired.

Boyer (Traité des Maladies Chirurgicales, etc. Tom. 4,) thinks that in Petit's case there was luxation of the first and second vertebræ of the neck; and that the *processus dentatus* having slipped out from under the transverse ligament occasioned immediate death, by compressing the medulla oblongata. As no dissection was made of this case, it may still be doubted, observes Dr. Walther, whether this was the case or not. Dr. W. infers that in his case, a luxation of the processus dentatus could not have existed, since such an occurrence must have necessarily proved immediately fatal. From the similarity of the causes in his case and in Petit's he thinks it will admit of a doubt, whether, even in this latter instance, such a luxation existed; and the second case related above, would appear still further to justify this doubt, since, although instantaneously fatal, the dentatus was not dislocated. Boyer, after having described the pathognomic marks of a dislocation of *one* of the lower oblique processes, asks "whether there is an example on record of the *two* lower oblique processes of a vertebra having been dislocated at the same time?" He leaves this question unanswered, and adds, that it is much easier to imagine such a dislocation, than to establish its existence by observation: its symptoms, effects and degree of dan-

ger are therefore as yet unknown. Dr. W. is persuaded that in the first of the above related cases, such a dislocation must have existed. The symptoms of this accident, as well as the degree of danger connected with it, may, therefore, he thinks, be deduced from this example. For as in a luxation of but *one* of the oblique processes of a cervical vertebræ the head is drawn towards the side in which the luxation exists, so, when the processes of both sides are luxated, it must necessarily be drawn directly backwards, giving a convex prominence to the forepart of the neck. He is the more convinced that his case was of this kind, since it does not appear that either a permanent distortion of the head *backwards*, or a dislocation of the two lower oblique processes of the same vertebræ had ever before been described by any one. It is obvious that the general symptoms and degree of fatality of such accidents must depend directly on the degree of injury which is inflicted on the spinal marrow. If it is not lacerated, and but slightly compressed, a reduction of the dislocation, will perhaps generally obviate dangerous consequences. Where the injury done to the spinal cord is great, speedy death is a necessary consequence.

Dr. Walther, therefore, divides dislocations of the vertebræ into *simple* and *complicated; simple* when the spinal marrow remains uninjured; and *complicated* when it is violently compressed, torn or lacerated.

The second case related by Dr. W. shows that the spinal marrow may be much injured—nay, even torn off, by external mechanical force, without either fracture or dislocation of the vertebræ. It is remarkable, he observes, that in some cases of mechanical violence to the head, the injury done to the brain or spinal cord is altogether confined to a particular spot, without any lesion of the surrounding parts. Thus he has known a fall upon the head to be immediately followed by permanent deafness; and in another accident of this kind a sudden and total loss of the sense of smell took place, without there having been the least injury done to the other senses, or to the understanding, in either case.

Dr. Walther combats with earnestness, and according to our views with much justice, the aphorism of Boyer, that the reduction of a luxated oblique process should never be attempted. Boyer apprehended great danger from such an attempt, thinking it much better to bear with the distortion which such a luxation produces, than to run the great hazard of fatal injury from an attempt to reduce it. Dr. W. observes that it does not appear that Boyer himself ever witnessed any injurious consequences from an attempt to reduce such a dislocation; for he does not fortify his opinion on this point by any observations of his own, but refers to the authority of his preceptor, Desault. But it would seem that even Desault himself had no experience on this head; for he does not in any of his writings mention the occurrence of such a case in his practice. "Who then," says Dr. W. "has observed the fatal consequence of an attempt to reduce such a dislocation?" The only case mentioned by Boyer, is reported by Petit Royal in the *Encyclopedie Méthodique.* This writer states that he saw a child, whose neck, after a fall, was turned to one side; a dislocation was supposed to exist, which was afterwards found to be the case; during an attempt to reduce it the child expired. There is, on the contrary, no inconsiderable number of cases on record, where the reduction of this species of luxation was effected without any dangerous consequences. Dr. W. quotes the following cases of successful reduction. Ehrlich, in his Chirurgical Observations, printed at Leibzig, 1815, mentions a case of this kind. Other cases are mentioned, Rust, (*Salzburg, Med. and Surg. Journ.* 1813, *vol.* 3.) Dorr, (*Medical Repository, Hexade II. vol.* 1.) Harrup, (*New London, Med. Journal, vol.* 1.) Ranby, (*Chirurgical Observations.*) Ruidiger and Sellin, in Smucker's Miscellaneous Works, vol. 1.

That this operation is unattended with danger, is by no means to be imagined; but it is equally evident, as Dr. W. observes, that Boyer's apprehensions were much too great; and that we should not in all instances, be deterred by his advise, from undertaking the reduction of luxations of this kind.

E.

ORIGINAL DEPARTMENT.

ART. IX.—*On the Efficacy of Nauseating Articles, combined with Mercury, in promoting a salivation.* By JOSEPH KLAPP, M. D.

THE majority of physicians have, in the course of their practice, met with cases in which they could not obtain from any of the preparations of mercury, a salivant effect. Such failures, it is almost unnecessary to remark, are sources, not merely of disappointment, but of much mortification and regret, as the medical attendant will often have reason to believe, that if he could have induced a salivation, he would have succeeded in effecting a cure.

There are, no doubt, many causes which occasionally are brought into operation to prevent the system from being subjected to the specific influence of mercury, some of which have been accurately pointed out, and appropriate means suggested to overcome the difficulties. With such obstacles as a too excited pulse, a habit of body too plethoric, or a circulation feeble and asthenic, and a dry skin with or without fever, the practitioner is quite familiar, as well as with the methods to be resorted to respectively in such cases. Notwithstanding, however, the possession of this very useful and important experience, cases will now and then occur, in which the physician will still have cause to lament the insufficiency of his means to mercurialize the system. Without assuming to myself any unusual extent of experience, I can say that I have often met with cases, both in public and in private practice, where the insusceptibility to the salivant process did not arise out of any of the above mentioned circumstances; and in which neither bleeding, purging, opium, nor the warm bath, were of the least avail. Similar difficulties have no doubt been met with by other practitioners, who have felt as well as myself, a strong desire to know something of the nature of the cause which formed the obstacle. To this desire the physician is very naturally led by an encouraging supposition, that a knowledge

of the circumstance which renders his prescription inoperative, would readily lead him to a rational method of correcting or removing the impediment. With me, for a length of time, various plans were devised, and I must say, instituted with the most discouraging results. The natural intricacy of disease, the difficulty of exploring the real state of the different organs, and more especially our want of information as to the way in which the characteristic or specific influence of mercury is induced, jointly served to impose on the subject great difficulty and uncertainty. While thus situated, a few accidental occurrences supplied me with a clue to a train of further observation and inquiry; the result of which I hope presently to be able to show, has led to an extension of the dominion of the physician over a certain class of cases, which, by the use of other means, would have remained insusceptible to the mercurial action.

In several instances where an ordinary dose of calomel and jalap had been prescribed, the medicine, instead of operating as a cathartic, proved emetic, and it was remarked that the patients were affected with a salivation in a short time afterwards. I have, in the course of an evening, prescribed the above medicine in a case of bilious colic, and on visiting the patient the next morning, I have been told that the powder had caused severe vomiting, but had produced only an inconsiderable effect on the bowels, and the patient has been found in a state of perfect ptyalism.

In another case my attention was also excited in consequence of a very alarming salivation having been produced, in a short time after taking a single dose of ipecacuanha and calomel, with the view to an emetic and a cathartic effect.

These sudden and unexpected salivations surprised me, and led me to investigate the principle on which they had occurred. As the phenomenon had always been connected with, or preceded by vomiting, I did not hesitate to suppose, that this derangement of the stomach, had, in some way, been the cause. This reasoning brought to my recollection a fact

which had been observed not only by myself, but by several other practitioners of this city, that a ptyalism may, in general, be more promptly excited by the use of calomel, nitre, and tartarized antimony, a formula which is familiarly styled here the antimonial powder, than by the employment of calomel separately. Having proceeded thus far, it became necessary in the next place to inquire what connexion could subsist between a state of nausea, and the excitement of a speedy salivation? I am aware that this question may be differently answered by persons professing different theories of the modus operandi of mercury. Without wishing to enter into the discussion of the general question, I shall state that the facility which was impressed on the action of the calomel in the occurrences above referred to, did not appear to be owing either to a lowering of the pulse, or to any determination of the fluids to the external surface; because neither the pulse nor the skin had been in an unfavourable state for the excitement of the salivant process: further, the action of the calomel on the mouth occurred, I think, in too short a period of time for the agency of any causes operating so indirectly. The effect must have been brought about by some circumstance both powerful and direct in its influence; this I believe to have been a sympathetic connexion which exists between the stomach and salivary glands. To show that the sensation of nausea, even though variously excited, usually produces an increased action of the salivary organs, I have only to refer to the profuse discharge of saliva which takes place just before an emetic begins to operate, also to the symptoms of cardialgia, pregnancy, and a variety of other diseases. Even disgusting sights and odours, it is well known, will, at almost any time, set one a spitting. A majority of mercurialized patients whom I have questioned, have assured me, that a short time before they began to spit, or were sensible of soreness in the gums, they had been more or less sick at the stomach. Hence, nausea may be regarded as indicating the speedy action of mercury on the mouth, and the same

thing has been observed in the different ways in which a salivation is induced, whether by rubbing the preparation on the external surface, or by receiving it into the stomach.

It was thus by repeatedly observing a deranged state of the stomach to precede the action of mercury on the mouth and throat, that the idea was first suggested to me, in cases difficult to salivate, of exhibiting nauseating articles to promote a ptyalism. The result of this mode of reasoning, applied to practice, will be seen in the history of the cases presently to be submitted. A greater number of cases might have been detailed, but I have preferred confining myself to a few, though I trust the number will be sufficient to illustrate the practice. I am at the same time in hopes that they will prove the more acceptable, as they have either been drawn up or witnessed by respectable medical men, void of every prepossession from theoretical views.

Previous to the submission of the practice, it will be proper for me to state, that the sentiments set forth in this paper have been entertained by me during a period of several years, and that so long ago as 1819, the practice was fairly tried in the Philadelphia alms-house infirmary, under the inspection of a pretty large class of medical students, then attending to the clinical practice of the house. Dr. Paris, a late very respectable writer on pharmacology, notices the effect which the excitement of nausea has in increasing the susceptibility of the system to the action of mercury. It is his opinion that the absorption of mercury into the circulation is greatly increased when the stomach is in a deranged state. But I think what he imputes to an augmented absorption, may with more propriety be referred to the sympathetic connexion between the stomach and the salivary glands. Dr. Paris's book, containing his sentiments on this subject, was published at least three years after my practice had been devised, and publicly put to the test of trial. In advocating the opinion that mercury acts sympathetically on the salivary glands, I would not wish to be understood to deny the absorption of it into the cir-

culation, and the possibility of its acting on the heart, arteries, and secretory system, through the medium of the blood, as contended for by the above eminent writer, and many other modern physicians. That mercury, however, also acts independent of the circulation, through the medium of the nerves, and has its effects extended into other and distant parts, by the excitement of the sympathies, cannot be denied. Indeed I see nothing improbable in admitting that both the absorption and the sympathetic effects of mercury may be increased by a deranged or nauseated state of the stomach. Neither the consistency nor the value of the practical part of this communication, and it is this which I only feel anxious about, can be effected by the adoption of either hypothesis, or both. Under the first view we would say, that nausea, by reducing the pulse, would increase the amount of absorption, it being an acknowledged law "that the energy of absorption is generally in an inverse ratio to that of the circulation;" and the advocates of the other theory will recognise in a well regulated nausea, a very powerful instrument of extending, from the nerves of the stomach, the specific influence of mercury over the secreting vessels of the salivary glands. The constitutional operation of mercury may be owing to its absorption into the blood, but the facts I have before stated, sufficiently expose the existence of a sympathetic connexion between the stomach, and the mouth, and throat, through the excitement of which the sialagogue effect is produced. Besides these facts, an additional one occurs to me, which, as it is of an interesting character, I shall pay some attention to. I allude to the difficulty of salivating children. It is confessed that our acquaintance with the laws of the nervous system is too limited, and the doctrine of sympathy involved in too much intricacy, to enable one to advance any thing on this subject with much confidence; but as sympathetic or associated motions require no small degree of repetition, and some time before they can become established, it will not be regarded unreasonable to suppose, that

this association or consent of parts between the stomach and the salivary glands, has not had time to take place in infancy, or exists in too limited an extent to admit of a salivation being produced.

I shall now proceed to relate some examples of the mode of practice which has been inculcated. The four first cases were drawn up at my request, by a very ingenious gentleman, who was house-surgeon of the infirmary in which they occurred. They are given in his own language.

Case 1.—"Ann Moa, aged forty years, was admitted into the Philadelphia alms-house on the sixteenth of September, 1819, labouring under rheumatism, which affected principally the lower extremities and right arm, and was attended with some excitement of pulse, and heat of skin. The treatment during the four first days after admission consisted in the administration of sudorific medicines, and the application of blisters to the parts affected. On the twentieth of September, Dr. Klapp directed two grains of calomel to be given thrice a-day, with a view of exciting ptyalism. This treatment was faithfully persevered in till the first of October, without producing any effect on the mouth, when Dr. Klapp substituted a formula, consisting of eight grains of ipecacuanha, and two grains of calomel thrice a-day.

This, as was anticipated, produced great nausea, and on the third day after commencing its use, the patient's mouth was slightly affected, but though it was continued several days, profuse salivation could not be induced.

Case 2.—Patrick Burke, aged forty-eight years, had been cured of hydrothorax and anasarca of the lower limbs, but Dr. Klapp suspecting some remaining hepatic disease, directed, on the thirtieth of September, eight grains of ipecacuanha and two of calomel, three times a-day. This combination producing great nausea and frequent efforts to vomiting, the quantity was diminished one-half after the administration of the second powder, and on the third morning after the first exhibition, his mouth was slightly affected, and on the fourth salivation was free.

Case 3.—On the thirtieth of September, 1819, Dr. Klapp prescribed a formula, consisting of ipecacuanha two grains, and calomel half a grain, thrice a-day, to excite ptyalism in John Russel, a patient who had been labouring under rheumatism. This had the effect of producing a moderate flow of saliva by the fourth day, *i. e.* after the exhibition of eight powders.

Case 4.—On the twenty-seventh of September, 1819, Dr. Klapp directed two grains of calomel thrice a-day to John Hoover, a patient labouring under phthisis pulmonalis. This having been continued with scarcely any perceptible effect on the mouth, on the eleventh of October Dr. Klapp substituted four grains of ipecacuanha with one of calomel, which had the desired effect, the patient being found on the fourth morning salivated."

Case 5.—Miss L., aged seventeen years, affected with paralytic symptoms and amenorrhœa, was directed the use of calomel, with the view to salivate, in February, 1822. Twelve months previously, Dr. Gebbard, her physician, assured me he had made an unsuccessful attempt to salivate her. She then took calomel for two weeks without producing even the slightest effect on the mouth. Considerable debility supervening, the undertaking was abandoned. I, however, stated to the doctor, that this information did not discourage me, for although her disease remained the same, and her present debility considerable, yet on account of a symptom happening to exist at this time, which did not when the doctor had failed with the calomel, I flattered myself that our endeavours would now prove more successful. The symptom alluded to was great irritability of stomach, causing her frequently to vomit up almost every thing taken. From this view we were induced to renew the attempt. In two or three days the action of the mercury on the gums was evident, and in a week more the flow of saliva was very profuse. The mouth continued to be affected for three weeks and better.

Case 6.—S. S., aged thirty-eight, labouring under inflam-

mation of the brain, took calomel freely from the third or fourth of March 1822, but on the eighteenth, not having been able to produce more than a slight soreness of the gums, he was directed a grain of calomel with an eighth of a grain of tartar emetic every two hours. The first dose vomited him, and caused so much irritability of the stomach, that for several hours nothing could be kept on it. The next day he, for the first time, complained to Dr. Hewson and myself of his mouth being sore. At our next visit, which was on the morning of the twentieth, we were fully sensible of the effect the nausea and vomiting had caused in adding to the action of the mercury on the mouth. The same formula was continued. We visited him again in the evening, when the swelling of the face and inflammation of the mouth had increased so much, as to make it unsafe to continue the calomel any longer. He was ordered to be purged with calcined magnesia. After having taken, at different times, half an ounce, on the twenty-first he had four or five bilious stools. The swelling of the face and soreness of mouth had increased. The alvine discharge being unfavourable, the magnesia was continued. On the twenty-second, the mercurial action was so fully developed, that it was conceived unnecessary to resume the calomel.

Dr. Eberle has done me the honour to make particular mention of my sentiments on this subject, in the second volume of his valuable work on Materia Medica. He also records a case, showing the success of the practice, which, with some of his remarks, I shall take the liberty of quoting, as affording me considerable disinterested support.* "Of the efficacy of nauseating doses of antimony in overcoming the resistance of the system to the action of mercury, I have lately had a remarkable example. After having tried ineffectually for nearly two months, to bring a venereal patient under the spe-

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* Eberle's Mat. Medica, Vol. II., p. 408—9.

cific influence of mercury, employed both internally and externally, I at length, by the suggestion of Dr. Klapp, gave him nauseating doses of tartar emetic, and by these means succeeded in less than three days, in establishing a gentle salivation.

"Dr. Paris* suggests that nausea and other causes which derange the digestive organs, favour the salivant influence of mercury, by the power which they may possess, of "overcoming the resistance which nature, in a state health, makes to the admission of poisonous substances into the circulation." This explanation is, however, wholly hypothetical; since it is perfectly ascertained that a state of health is generally the most favourable condition of the system for the specific influence of mercury. It is moreover predicated upon the supposition that remediate substances are more readily absorbed in a state of debility and disease, than in the vigour of health,—a supposition by no means countenanced by experience. Dr. Klapp, in a conversation which I had with him on this subject, suggested that the effects of nausea in favouring the operation of mercury, may be referred to the obvious tendency which sickness of the stomach has to determine the circulation to the salivary glands, and to excite their secretory action, as is shown to be the case by the increased flow of saliva which commonly takes place during nausea. There is, undoubtedly, a very intimate connexion between the stomach and the glands of the mouth; and it is not improbable that through this relationship between these organs, nausea may produce the effects which are here ascribed to it. This practice of combining nauseating doses of emetic substances with mercury, for the purpose of expediting its salivant operation, was employed by Dr. Klapp several years before Dr. Paris's observations on this subject were pubished."

Philadelphia, July, 1824.

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* Paris's Pharmacologia, p. 115. Lond. 3d edit.

ART. X.—*An Account of an Extraordinary Predisposition to Hæmorrhage in a Family of Children.* Communicated by GIDEON HUMPHREY, M. D.

IN the summer of 1817, while I practised medicine in Delaware county, Mr. and Mrs. G—— called on me with their child, aged fifteen months, labouring under hæmorrhage from laceration of the frœnum of the upper lip. The accident had occurred three days previously, and the child was very much exhausted from the loss of blood. They informed me that three physicians had been called, but that the means used had not succeed in checking it. The parts in the neighbourhood of the injury were considerably inflamed and tumefied. Resting satisfied that the common means resorted to in such cases had been tried, I determined to apply the actual cautery, the inflammation, &c., notwithstanding. This I resolved on, because, had I waited to reduce the inflammation, the child must have inevitably sunk under the discharge. —I therefore cauterized it sufficiently to form an eschar, which checked the bleeding, and the child afterwards recovered. The parents then informed me that they had lost two children, one aged eighteen months, the other about three years, by "bleeding" from very slight injuries. The first was by an accident similar to the one I had just treated, viz: a laceration of the frœnum of the upper lip, occasioned by a fall on the floor. That the same accident, and so uncommon an one too, should occur twice in the same family, may appear somewhat singular, but such was the information I received. The other case was an injury received on the forehead, not more serious, to appearance, than a scratch of a pin.—In each of these cases two "doctors" had been called, but all their efforts to check the bleeding had proved ineffectual, and both children died. When compression was used, the blood effused itself into the cellular tissue; the parts swelled, inflamed, &c., and as soon as the compresses were removed, the blood again oozed from the wound.—They informed me, that

the cautery had not been used in either case.—The case, then, to which my attention was called, was the third that had occurred in the same family.

In May 1818, I was called to R. W., brother to the above lady, a lad aged eleven years. He was bleeding from a cut with a penknife on the end of the fore-finger. It was small, but no means that the family could invent, would stop the hæmorrhage, which, though small, became alarming from its continuance. I was called on the fifth day after the accident occurred, and applied a compress sufficiently tight to stop the discharge, but, on the second day after, I was again called to him. I found the hand very much swoln, inflamed, and very painful; the fore-arm much swoln, and the injured finger and palm of the hand were black from an effusion of blood;—upon removing the dressings, the blood again began to ooze from the cut. I now ordered means for reducing the inflammation, with simple dressings of lint to the cut; on the second day from this, the inflammation, &c., being in a great measure reduced, and the cut still bleeding, I applied the cautery which succeeded in suppressing it. In autumn of of the same year, the same lad had the second molar tooth extracted by a neighbouring farmer. The blood oozed from this for several days, (six) when I was called to him. I tried every other means without effect, and was obliged to cauterise it, which produced the desired effect.

Remarks by the Editors.

The records of medicine furnish us with some very remarkable instances of the kind related in the above authentic communication. In Huffeland's *Journal der Practischen Heilkunde*, for February, 1824, Dr. Elssaesser gives an account of a family in which the hæmorrhagic predisposition was strongly developed. This account states that *Jacob Sehr*, aged about thirty-four years, of a healthy habit of body, was married in 1816 to a young woman of a good constitution,

with whom he had had three male children at the time when this history was drawn up. Neither *Sehr* nor his wife, nor any of their parents or relations, had shown any extraordinary predisposition to hæmorrhage. In their three children however, this predisposition existed to a very uncommon extent. The first of these children appeared perfectly healthy when born. On the eighth day after birth, however, he sickened, and a hæmorrhage from the umbilicus came on, and continued in spite of every application that was made for its suppression, until he died on the fourteenth day. The second brother was born in 1818, and appeared, like the first, perfectly well. Dentition commenced in the tenth week, attended with the ordinary symptoms, diarrhœa and salivation. From this period the surface of his body was observed to be covered with a number of *dark* spots, from the eighth of an inch to an inch in diameter, and of irregular figure. The colour of these spots was at first reddish, often light blue, and finally of a light greenish red, and they depended evidently on extravasated blood. They disappeared generally in five or six days, and new ones on other parts of the skin came out, so that there were seldom less than twenty of these maculæ on the surface of the body. In the eighth month of his age he fell, and injured his mouth; a bleeding from the gums was the consequence of this fall, which lasted, with short intermissions, for seven days. Some time after he again fell, which caused a violent and long continued hæmorrhage from the nose. From the commencement of his second year, he was subject to frequent and alarming bleedings from the nose, which came on spontaneously. In 1821, he cut himself with a pair of scissors in the middle joint of one of his fingers, from which the blood flowed for eight days, notwithstanding every means that was resorted to in order to restrain it, and by which he was nearly destroyed. In 1822 a violent bleeding from the nose came on, in consequence of a fall, which, with occasional intervals, continued for nearly six weeks. The slightest wounds of the skin now gave rise to tedious bleed-

ings. In November of this year, he struck his head lightly against a hard body, by which a slight wound of the skin was produced; very little bleeding, however, came on, and the wound was soon covered with a thin crust. On the fifth of December, while playing, he pulled off this crust with his fingers; a very profuse bleeding immediately came on from the wound, and continued with unabated violence until he died on the following day.

The third son was born in 1821. He appeared to be in perfect health until he reached his eleventh week. About this time dentition commenced, and his body became covered, as in the preceding case, with dark blotches of extravasated blood. No hæmorrhage had as yet appeared. On the thirtieth of May, 1823, however, Dr. Elsaesser was call to visit him, and found him extremely exhausted from a hæmorrhage which came from a small wound he had received by knocking his head against a hard angular body. The blood in this instance, as well as in the preceding ones, did not issue in a stream as from a vessel, but oozed out copiously as from a sponge.

Professor Nasse of Bonn, in an interesting paper on hereditary predisposition to a fatal hæmorrhage, has collected a very considerable number of examples of this kind.*

ART. XI. *Two Cases of Carcinoma of the Ileum.* By GEORGE M'CLELLAN, M. D.

Case 1.—ON Thursday, the twenty-second of July last, I was requested to visit Mrs. M. A——, a delicate and interesting lady, who had, ten weeks before, been delivered of her third child. She was about twenty-three years old, and had enjoyed, with the exception of two severe puerperal attacks, an ordinary degree of health. Her first and third confine-

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* S. Archiv. f. Med. Erfahrung im Gebiet der pr. Med. Mai and Junius, 1820.

ments were premature,—occurring at the seventh month, and exhausting her system until the most alarming symptoms of debility and nervous agitation supervened. I was informed by her family, that, under these circumstances, she was supposed to be dangerously ill; and that she afterwards gradually recovered her strength and spirits under the use of tonics and antispasmodics. Her children, however, all survived, and appear to have attained the ordinary size and vigour. About seven weeks after her last confinement, when she had been restored to her natural strength and appetite, her husband sailed for Europe, on a visit to his friends. After that period, she was afflicted with a morbid vigilance and restlessness: she lost her natural composure of mind in the day time, and at night she experienced such constant uneasiness from fearful apprehensions and dreams, that her friends could not be induced to believe that she enjoyed any degree of sleep. A few days before I was sent for, she began to complain of dizziness, and of a peculiar sensation like sand rolling in her head. Her mind was also bewildered, on one occasion, with an extraordinary phantasm, in consequence of which she was perpetually disturbed with the fear of becoming insane. Her bowels had not been opened for some days, and she was occasionally troubled with colicky pains.

When I first saw her, she exhibited no signs of febrile action, either in the pulse or skin; but a great deal of irritation existed in her bowels and nervous system generally, as was evinced by a tenderness on pressure over the abdomen, and a constant restlessness and agitation of the muscles. I therefore depended upon the exhibition of purgatives, which were ineffectually administered, although they were followed by active injections. On the succeeding day, (Friday, July twenty-third,) her abdomen had become considerably distended, her pulse excited, and her face very much flushed. She was, therefore, bled to the extent of ℥viij in the morning, and of ℥xii more in the afternoon, at the same time that moderate doses of calomel were exhibited every other hour.

for the purpose of exciting catharsis. She fainted after both of these bleedings, and after the second, her pulse became extremely low and tremulous. Violent spasms also supervened, in consequence of which I was obliged to administer several doses of ether and assafœtida. At night, two assafœtida injections were thrown up without producing any effect on the bowels. At the same time a blister was applied to the nape, and sinapisms to the feet, for the purpose of removing the symptoms of cerebral irritation which were then present in an alarming degree. The next day, (Saturday) her abdomen had become almost tympanitic; and the muscles of her back and inferior extremities were afflicted with exceedingly painful cramps. An emetic of ipecacuanha and antimony was then exhibited, which not only produced a vomiting, but was soon after followed by copious evacuations from the bowels. This was the first purgative effect which could be induced by the action of any remedy in her case, and I can hardly avoid mentioning it as a strong corroboration of the views of Dr. Hosack respecting the favourable influence of emetics under such circumstances. Still, however, the symptoms of nervous irritation remained unmitigated; and in the evening her agitation became so severe, that I was forced to administer two and a-half grains of opium for the purpose of procuring sleep. To prevent the constringing effects of this remedy upon the intestinal, as well as the various other secretions, five grains of calomel were combined with it, in the form of a pill. The immediate effects of this prescription were very favourable. The patient, for the first time during nearly three weeks, slept soundly through the whole night, and in the succeeding morning she passed three large stools of a bilious appearance and consistence. At the same time the tympany subsided, and the tenderness of her abdomen became confined to a small space in the right iliac region. But the general irritation was not diminished:—on the contrary, her mind became more agitated, and the spasmodic contractions of her muscles more severe. My friends

Dr. Monges and Dr. Eberle, were therefore called in consultation, and they afterwards regularly visited the patient with me, until the period of her death. As there was at first some difference of opinion between us respecting the seat and nature of the disease, and as the various symptoms which gave origin to the opposite opinions alluded to, may serve to elucidate the subject more clearly, I will detail the leading circumstances as particularly as may be consistent with the limits to which this communication must be confined.

I had all along acted on the opinion that the primary seat of Mrs. A——'s disease was in the abdomen, and the symptoms which I have already described as connected with that region, appeared to countenance this opinion. One of my friends, however, imagined that the description of the case corresponded exactly with the histories of some patients afflicted with *arachnitis*, as related by Drs. Duchatelet and Martinet, in their excellent work on that subject. He observed that Mrs. A—— expressed great surprise and astonishment in her countenance whenever any person entered the room, and even when she was addressed by any of her attendants or connexions on the most trivial subjects. She stared instead of looking at them. There was also a peculiar expression about her eyes whenever she attempted to raise the upper lids for the purpose of staring at any object;—instead of elevating the palpebræ alone in the usual manner, the eye-brows and whole forehead were drawn upwards at the same time, as if the levatores palpebrarum were so much weakened as to require the assistance of the occipito frontalis muscle in their action. There was also a great slowness of apprehension and indistinctness of speech; indeed, she could only utter monosyllables after the third day of my attendance. These symptoms have been described by Duchatelet and others, as characteristic of *arachnitis;* and as they occurred, in the present instance, in connexion with some more direct signs of cerebral irritation, the opinion did appear to be advanced with a strong colour of probability. My other friend, however,

conceived that the usual and most striking symptoms of meningeal inflammation, (such as quickness, hardness, and contraction of the pulse, heat and dryness of the skin, &c.) were not present; and that as there had been evident signs of abdominal disease, it would be more philosophical to attribute the cause to some derangement in that cavity. He agreed with me in suspecting that, notwithstanding so long a time had elapsed after parturition, there might be some connexion between the symptoms and her puerperal state; and also that the uterus might partake of the same irritation which probably existed in the peritoneal membrane. The symptoms of cerebral and nervous derangement appeared to him to be satisfactorily accounted for on the commonly received doctrine of sympathetic influence. Still, however, there prevailed no small degree of uncertainty in our minds, and we all proffered our opinions as mere suggestions or conjectures respecting an exceedingly obscure state of disease.

To allay the symptoms of irritation about the head, six ounces of blood were first drawn by cups, from the forehead and temples. No relief, however, was derived from this measure: on the contrary, the general agitation and spasms were greatly increased,—a cold sweat came over the whole surface,—and the pulse sunk into a low, fluttering condition. After the forces had been invigorated again by stimulants and antispasmodics, an infusion of senna and manna was resorted to for the purpose of clearing the bowels still more completely of their irritating contents. A large blister was also applied over the abdomen; and mucilaginous injections were occasionally thrown up the rectum. In the course of a few hours several bilious and mucous evacuations were procured by the action of the purgative, without relieving the tenderness in the right iliac region, or the general irritation of the nervous system. Opium was afterwards administered in large and repeated doses; but no sleep could be procured, nor was any respite afforded to the spasms. Notwithstanding all the various antispasmodic articles which were employed, the symp-

toms continued in nearly the same condition until Wednesday, July twenty-eighth, when severe convulsions of the whole muscular system began to appear. These convulsions sometimes alternated with a slight coma, at other times they left the system in a more tranquil condition than had been witnessed for several days before. They subsequently increased in frequency and intensity, until Friday, the thirtieth of the same month, when the patient expired, on the ninth day of my attendance.

We examined the body eighteen hours after death, and the following circumstances were disclosed.—No trace of disease, whatever, could be detected within the cranium, either in the brain or its membranes. The vessels of the pia mater did not appear more turgid than natural, nor was there an unusual quantity of fluid collected in the ventricles. We were all equally surprised at these circumstances; for whatever difference of opinion had occurred amongst us in the early stage of the disease, the appearance of convulsions induced an unanimous belief that the encephalon was affected.

We next laid open the abdomen, and at first could discover no sign of morbid action in that cavity. The peritoneum appeared perfectly smooth, and free from every trace of adhesion and morbid secretions. The viscera presented no vestige of inflammation, until on inspecting the lower portion of the *ileum*, a few discoloured spots were observed in the parietes of that intestine. These spots were of a reddish-brown or livid colour; and they were placed at short distances (from one to three inches) apart from each other. They were of various sizes, from one-quarter to two-thirds of an inch in diameter; and they altogether occupied about the last foot of the length of the ileum. On a close examination they were found to be considerably thicker and harder than the surrounding portions of the intestine; and the blood-vessels which extended from them were greatly dilated and distended with blood through the whole breadth of the mesentery. The mesenteric glands which were situated along the course

of these dilated vessels, were also found to be enlarged and converted into a soft brain-like structure. Several of them were as large as a hickory-nut, and they all presented the characteristics of *medullary sarcoma* so strongly, that we did not hesitate to rank them under that name. On laying open the intestine, the diseased spots in its parietes were found to be prominent internally, with whitish jagged ulcers on their surfaces. But the principal disease existed at the very termination of the ileum, about three and a-half inches of which were greatly thickened, contracted, and ulcerated. The cavity of this portion of the intestine was almost entirely obliterated, and it appeared quite surprising that any evacuation could have been procured from above. The thickened parietes of this diseased part were indurated, and almost cartilaginous in texture. Internally the surface was cracked or ulcerated into deep and irregular fissures. Altogether the whole mass very closely resembled one of the forms of cancerous lip, a fatal case of which lately occurred to me, presenting precisely the same kind of disorganization in the lymphatic glands of the throat, as was observed in the mesenteric glands of this individual.

The only morbid appearance that we could discover in any other part was in the uterus, the structure of which was friable and somewhat granulated. On laying it open, its parietes could be torn very easily in every direction. This circumstance struck us as a remarkable one, when we considered how recently parturition had taken place, and how easily a rupture of the organ might have occurred under the slightest efforts at contraction.

The integuments were remarkably thin and transparent, allowing the subjacent veins to be seen on every part of the surface; and the whole appearance was such as would generally be considered to denote a predisposition to scrofula.

Case 2.—The second instance, which I believe to be an incipient case of the same disease, occurred in the person of a little girl nineteen months old, daughter of the Rev. M. M.

Carll, of this city. She had always been of a pale, leucophlegmatic habit; and during the earlier part of the past season was afflicted with a tedious and harrassing cholera, which did not subside until she was carried into the country for the benefit of fresh air. While she remained there, for several weeks afterwards, the disease was perfectly relieved; but on the very next day after returning to the city, it re-appeared with great violence. Blood was discharged in considerable quantities along with the stools, and her strength rapidly declined. By the action of two grains of calomel, followed by small and frequently repeated doses of antimonial solution, these unnatural discharges were very soon corrected; but she was left cold and extremely exhausted during the succeeding night. On the next morning I found her labouring under symptoms of severe nervous irritation, almost amounting to convulsions. Her eyes were distorted, her respiration was irregular, and the whole muscular system appeared to be exceedingly agitated.

There was also a distressed sensation about the throat, which occasionally produced a spasmodic attempt at swallowing. As I had before known these symptoms to originate from the presence of worms in the stomach, I did not hesitate to ascribe them to the same cause on this occasion. After administering five grains of calomel, I, therefore, prescribed fifteen drops of the spirits of turpentine, to be repeated every third hour. But in less than an hour afterwards, I was again sent for in great haste, with a notice that the child had fallen into convulsions almost immediately after taking the dose of turpentine. Before I arrived she had expired in one of these convulsions.

On examination of the body six hours after death, I was altogether disappointed in my search after intestinal worms. All of the glandular viscera presented a healthy appearance. The stomach and intestines were found to be perfectly empty, pale, and free from every appearance of inflammation. The lower portion of the ileum, however, was studded over with

nine livid spots, from each of which enlarged veins could be traced deep into the mesentery.. Along the course of these veins the mesenteric glands were evidently diseased,—presenting a brown or bluish colour, and a softened structure. They were mostly of the size of filbert nuts, and yielded a mucous fluid when compressed between the fingers. On laying open the cavity of the intestine, the discoloured spots were found to correspond to internal tumours of the mucous coat, of a flat, circumscribed appearance, and oblong figure. These tumours were generally about three inches in circumference; and four of them were superficially ulcerated in the centre, so as to resemble very closely the appearance of chancres on the prepuce. Around the base of each tumour were situated a number of very small white tubercles. Both portions of the fallopian valve were thickened and ulcerated, and from the inner surface of the colon, a thick lining of coagulated lymph could be scraped off with a knife.

I trust that the preceding cases will not be found altogether uninteresting to any of our readers. They will serve, at least, to show the value of *post mortem* examinations in explaining such causes of death as cannot otherwise be ascertained; and they will probably excite some attention to the too much neglected subject of specific diseases. From my own experience I have long been convinced that carcinomatous and other morbid structures, occur much more frequently than is generally imagined. They are not less liable to originate among the internal parts than upon those external organs where alone they are usually discovered by practitioners. In examining the bodies of such patients as have died of obscure and undetermined diseases, I have frequently discovered internal derangements, which could not have been suspected from a previous attention to the symptoms. Whether those which I have now described can be ranked as really carcinomatous or not, it is hardly necessary for me to consider, for that appellation has hitherto been so vaguely applied as to designate various kinds of morbid structure.

ANALECTA.

The following remarks upon wearing Flannel, are extracted from a late excellent work upon Pulmonary Consumption, by Dr. Armstrong, of London, a gentleman distinguished equally by his love of science, and his ardent zeal for the progress of liberty in this and all other countries.

"When flannel is worn next the skin, Dr. Barlow remarks, it is almost invariably the practice to keep it on by night as well as by day. This is not only unnecessary, but injurious. The chief advantage of using a flannel dress next the skin, results, not from the actual warmth imparted or retained, an effect which might be obtained to an equal extent by an increase of outward clothing,—but from the uniformity of temperature thus insured to so large a portion of the surface of the body, and the tendency which it has to keep the highly important, but too much neglected, functions of the skin in an active and healthy condition. During the day, the frequent and oftentimes sudden vicissitudes of our climate, are such as to render the effects of flannel in preserving an equality of temperature, most valuable. But at night, and during sleep, we are exposed to no such vicissitudes; consequently, the same necessity for the use of flannel does not then exist. But while the use of flannel at night thus appears to be unnecessary, there are several considerations that show it to be injurious. These considerations regard both the condition of the body, and of the flannel itself. Whatever the wants of the body for warmth during the night may be, they are, in general, fully supplied by the bed-clothes in common use. The body requires no additional warmth during sleep: on the contrary, there is at such times even a tendency to an increase of the natural warmth. When to this natural tendency the heat caused by flannel next the skin is superadded, the effect is to keep the skin in a state of considerable excitement, and to induce perspiration more or less profuse. These effects are not calculated to prepare the body for enduring the vicissitudes of the ensuing day, but rather to render it more susceptible of injury. Again, continues Dr. Barlow, the property which renders woollen cloth so eminently suited to the purposes in view, is that of its being a slow conductor of heat. This property is directly proportionate to its dryness, and is greatly impaired by its imbibing humidity of any kind. A flannel dress, however, that is worn next the skin throughout the night, becomes so charged with perspiration, that its power of conducting heat is thereby greatly increased, and its preservative effects proportionably diminished. Here, then, is a two-fold injury resulting from the prevailing practice of continuing the flannel dress during sleep; namely, a diminution of the preservative powers of the flannel, and an increased susceptibility of the skin. By laying

aside the flannel dress on going to bed, and substituting one of coarse calico, the body is kept in that temperature during the night, which fits it for encountering the vicissitudes of the following day, while the flannel is preserved from the deteriorating effects of the nightly perspiration, and is resumed in the morning in a state which contributes both to comfort and protection. A difficulty, Dr. B. subjoins, is experienced with most people who have accustomed themselves to the nightly use of flannel in inducing them to alter the habit. Fear of taking cold creates one great obstacle: and a disinclination to the feeling of cold experienced at the moment of changing the flannel for the calico night-dress, especially in winter seasons, is another. Confidence in the medical adviser, however, is sufficient to remove the first, and a very little experience to remove the latter; for after a very few trials, the proposed change is found to prove a decided gain, even on the score of sensation, and the gratification derived from resuming a dry and comfortable flannel in the morning, together with the sensible increase of its utility during the day, are found to compensate amply for the slight unpleasantness attending the momentary exposure of the preceding night.

We abstract the following very interesting article from the London Medical and Physical Journal for May 1824:

Hyalonyxis.—This term is derived from *υαλος, glass,* and *νυσσω, I pierce;* and is applied by Dr. John Brewer to a new operation proposed by him for the removal of every species and variety of cataract. Dr. B. states, in his work on this subject, that he has performed this operation upwards of one hundred and sixty times during the last four years of his residence in Italy. He also assures us, that thirty of thirty-one patients have been restored to sight by this mode of operating. Inflammation is of rare occurrence, provided proper precautions are used.

The operation is thus performed, three or four hours previous to which the patient's eye-brows should be rubbed with some of the extract of belladonna, rendered soft by the addition of a little boiling water:

"The patient being seated, so that the superior part of the head does not reach higher than the superior part of the sternum of the operator, he takes his needle, previously besmeared with oil, as a pencil or writing-pen, placing the weight of his hand on the cheek of the patient: this produces two very considerable advantages; first, it steadies the hand; second, in the event of the patient's moving, the hand preserves its relative position with respect to the eye, so that any movement of the patient's head can be of no importance to the surgeon. The patient being directed to turn the eye towards the nose, the needle, with its convex

surface* forwards, corresponding with the iris, is boldly introduced into the globe of the eye, through the sclerotic, three lines or three and a-half from the transparent cornea, and a line below the transverse diameter of the pupil, to avoid wounding the ciliary artery, which pursues its course to the iris between the sclerotic and choroid coats, along the middle of the external convexity of the eyeball. If introduced at or below this point, you avoid all effusion of blood. The instrument passes into the vitreous humour, posterior to the lens and its capsules: the point of the needle is then brought forwards, from inclining the hand to the temple, and penetrates the posterior capsule.

"Should the lens be soft or fluid, the needle passes through its centre on its passage to the anterior chamber; if solid, the instrument should be directed to its superior part, and by gently elevating the handle, the lens will be sufficiently depressed to allow the instrument to pass between it and the ciliary processes; it is then carried through the anterior capsule and pupil. (which latter has been previously dilated with the belladonna,) into the anterior chamber, without any risk or danger of wounding either ciliary ligament, iris, or ciliary processes. The object the operator has in view, is the laceration and removal of a large portion of the anterior capsule, that is to say, of greater extent and diameter than the pupil, in its natural, most dilated state. This is effected by three or four circular movements of the point of the needle, which should invariably be done. If the capsule be transparent, the inexperienced operator will scarcely be sensible of effecting any good or change by this circular movement of the needle.

"The correspondence in transparency and colour to the aqueous humour is so similar, and the former so delicate, that no resistance to the needle is visible to the fingers, when the point is breaking down and removing from the axis of vision the membrane, so frequently the cause of secondary cataract. When the capsule is opaque, the effects of the needle are of course evident: the transparent or opaque portions should be conducted backwards or downwards with the lens, and buried in the vitreous humour, below the margin of the iris, and as much as possible removed from the pupil; on retiring and withdrawing your instrument, a circular movement is similarly made with the point, for the purpose of removing every portion of the posterior capsule, which is also liable to opacity; so that a communication is completely established between the aqueous and vitreous humours. The anterior capsule, lens, and posterior capsule, are now re-

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* To avoid still more the wounding of the ciliary nerve or artery, the needle may be introduced with its cutting edge corresponding with the iris; and after having entered the eye, to be turned round with its convex surface forwards, and continued as we have before described.

moved; so that the utter and total impossibility of secondary membranous cataract forming, must be evident.

"Such is the operation for a solid cataract enveloped by its capsule; but the lens we meet with, at least seven in ten cases, is either fluid, semisolid, or curdy. When the instrument, therefore, penetrates the anterior capsule, and the operator commences his delicate circular movement, the aqueous humour becomes cloudy or discoloured, which is the passage of parts of the diseased lens into the anterior chamber, where its absorption is more rapid than in the vitreous humour.

"The views of the operator are the same: instead of quickly finishing the operation, the solid particles of the lens should be removed by several movements of the needle as much as possible from the axis of vision, either by depressing them into the vitreous humour, or bringing them into the anterior chamber. The free movements of the needle, and removal of the capsules into the aqueous or vitreous humours, as we have above described, ensure the success of the operation.

"The great desideratum in the fluid cataract, is the laceration and removal of the capsules from the axis of vision; for in all cases where a free communication is once established between the aqueous and vitreous humours, absorption goes on, and your cure is almost certain.

"We have now described the removal of the lens in two different states: there only remain some observations on the third.

"I have occasionally met with the lens united firmly to both capsules, forming, as it were, only one body. These cataracts, from their size and appearance, are easily distinguished from what Scarpa very properly termed primary membranous cataract, which is the wasting of the chrystaline without its capsule, which appears contracted and more opaque in its centre than common cataracts. The most correct account, however, we have of this variety, is from the late Mr. Saunders of London, published by his friend and colleague, Dr. Farre, an eminent physician. These cataracts are, for the most part, congenital; and although Scarpa represents them as rare, are not uncommonly met with in children. When the lens in these cases is absorbed, the anterior lamella of the capsule, unites itself to the posterior, until they form one membrane, which is white, opaque, and elastic: this membrane is absorbed, after puncture, with the needle and partial laceration. A most interesting account is given by Mr. Saunders, with their removal in children."

On the employment of Oil of Turpentine in Sciatic and other Neuralgiæ—M. L. Martinet relates that of thirty-six individuals labouring under acute as well as chronic neuralgia, twenty-six were completely cured, seven experienced considerable relief, and in three only, one of whom was affected with a mortal hip

disease, did the treatment by the oil of turpentine fail. The use of the remedy produced but trifling inconvenience, and the common duration of the treatment was only six days.—*(Revue Med.) London Med. Repository.*

Use of Sulphate of Copper in Croup.—Dr. H. Hoffman recommends the sulphate of copper as an excellent remedy in croup, especially after blood-letting. In slight cases he begins with giving from a quarter to half a grain every two hours; in those cases, however, where there is also laryngitis, or bronchitis, three, four, or more grains are administered, so as to excite instant vomiting; by so doing, the Dr. thinks that not only is the lymph expelled from the trachea, but also that the further secretion of it is prevented, so that the patient is very much relieved, and soon cured. After copious vomiting has been produced, the medicine is to be given in small doses, in conjunction with digitalis. In support of the utility of the above practice, Dr. H. affirms that he has employed it with the greatest success during a period of ten years, in a great number of children affected with croup, without ever having lost a patient in that time, notwithstanding the disease was often at its height when he was first called in.—*Med. Repository.*

New Remedy for Tape-worm.

Brayera Anthelmintica.—Dr. Brayer, who resided a long time at Constantinople, has brought with him a new remedy for tape-worm, which is said to be very valuable. It is an Abyssinian plant, now much employed as a vermifuge throughout the whole Turkish empire. He became acquainted with it in the following manner:—He frequently met with an old Armenian merchant at a coffee-house in Constantinople, who gave him an account of his journies to Cairo and Abyssinia, and particularly of the medicinal powers of the plants which grow in that country. Among other things he observed, whilst looking at the principal waiter of the coffee house, who was troubled with a tape-worm, and who had employed the most eminent Turkish physicians without receiving the least benefit,—that man, he said, were he in Abyssinia, would be relieved of his worm in twenty-four hours. He, at the same time, told Dr. Brayer, that he had written to his son, then travelling in Abyssinia, to send him some of the flowers of the plant *kotz*, as it is called in that country, and which he stated was the remedy employed by the Abyssinians for tape-worm. Dr. Brayer paid but little regard to this information, at that time; but his attention was particularly drawn to it, when, in January 1822, the same coffee-house waiter came to him in an unusually lively mood, and said he was cured. The flowers sent for

by the old merchant, arrived on the fifth of January. On the following morning, the patient drank, on an empty stomach, a half pint of an infusion made with five drachms of the flowers to one pint of water; in two hours after he took another half pint. Soon after the second dose was taken, he felt violent pains in the abdomen, and in a short time the whole dead worm was expelled.

According to some specimens brought back, Kunth has ascertained that the plant belongs to the *rosaceæ*, approaching in its character to *Agrimony*, and to which he has give the name *Brayera Anthelmintica*. This plant is a small tree, with branched, hairy, alternate leaves. The only difference between the flowers of the Brayera and Agrimonia, is that the margin of the calix of the former is double, and the petals very small and more separated.*

Nouveau Journal de Medecine, August, 1822.

Vapour Bath in the Hardening of the Cellular Tissue of newborn Infants.—This affection, which the French call *endurcissment du tissu cellulaire*, still prevails every winter, almost epidemically in the Foundling Hospital of Paris. So fatal is this disease, that out of six hundred and forty-three infants who were affected with it from the year 1808 to 1811, only sixty-seven recovered. It was observed that the disease was much less frequent and mortal when the house was furnished with a sufficient number of wet-nurses, than when the infants were nourished by artificial diet. After many unsuccessful experiments, a remedy has at last been discovered, which has hitherto been found to prove very successful. This remedy is the *vapour bath*. The infants are immersed in an aqueous vapour bath of the temperature of about 96°. From six to eight baths are in general sufficient to effect a cure.

New mode of operating for Sarcocele.—Mr. Humont, an eminent military surgeon, in order to avoid the extensive wound, hæmorrhage, and subsequent profuse suppuration which are frequently unavoidable in the ordinary mode of operating for sarcocele, has performed this operation in the following manner, with the most favourable result. The patient was placed on his back, with the pelvis considerably elevated, and the thighs separated. The operator, standing on the side of the affected part, grasped the tumour with one hand, raised it up and drew it forwards over the *os pubis* and groin of the opposite side, so that the lower part of the tumour presented above, and the posterior part forwards. Taking a bistoury, as if preparing to cut from without inwards, he made an

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* Archives Genérales de Medecine,—Janvier, 1821, p. 116.

incision from above downwards three and a-half inches in length, extending to the inguinal ring. Having divided the cellular layers of the dartos, the diseased part came to view between the lips of the wound, which were separated by an assistant. The tumour was now separated from its surrounding adhesions, and the spermatic cord insulated. After the inguinal ring was sufficiently exposed, the cord was divided with one stroke of the knife. The blood spouted from four arterial branches, which alone were tied. The artery of the septum scroti being uninjured, was easily distinguished by its pulsations, running along the side of the incision. The wound was united by adhesive straps, and healed with but little suppuration. This mode of operating is not practicable in all cases; but in cases where the surgeon can select the part for his incision, this method appears to be preferable.

Poisoning of a Suckling Child by the milk of the mother.—W. Tourtnal relates the following remarkable circumstance:—A married man quarrelled with a soldier in the presence of his wife The soldier drew his sword and made an attack upon the husband; in consequence of which the wife was thrown into the utmost terror. She immediately afterwards put her eleven months old child to her breast. In a few minutes the child ceased to suck, became slightly convulsed, and immediately died.

Hufeland's Journal, February, 1823.

Account of an Essential Oil, which flows spontaneously from a Tree in South America. Communicated by Dr. Hooker.

It is with much pleasure we are enabled to lay before our readers some account of a fluid, containing all the properties of an essential oil, which the natives of South America, in the district between the rivers Parime and Oronooko, are in the habit of extracting from a tree which, though it abounds in those regions, is unfortunately, as yet, unknown to naturalists. The information has been communicated to us by our excellent and scientific friend, C. S. Parker, Esq of Glasgow, who, in a late visit that he made to Demerara, suffered no opportunity to escape him of investigating the botany of those fertile regions, whence he has already transmitted to his native country several valuable vegetable productions.

Mr. Parker's attention was particularly attracted by the *Native Oil of Laurel*, a fluid which seems to have been but recently heard of in the Dutch settlements, and which we are assured by Mr. Edmondstone of Cardross Park, near Dumbarton, (whose long residence in that country, as Protector of the Indians, gave him unusual facilities in obtaining scientific information,) was also unknown to those people a few years ago. Aided by the

previous attention that Dr. Hancock, an experienced physician in the colony, had paid to the nature of this oil, Mr. Parker drew up an account of it, which was inserted in the Colonist (Demerara) newspaper; Jan. 18, 1824, and which, as comprising every thing that was known upon the subject up to that period, we shall here insert.

"*To the Editor of the Colonist.*

"Sir,—I take the liberty of communicating, for insertion in your Journal, a few observations on a very extraordinary vegetable production, the knowledge of which has, hitherto, been almost exclusively confined to the natives of Spanish Guiana. This substance, which has very injudiciously been termed *Azeytode Sassafras,* (an appellation which tends to confound it with the essential oil yielded by the *Laurus Sassafras* of the Northern Continent of America,) affords, so far as my knowledge extends, a solitary instance of a perfect volatile liquid, without the aid of art. Substituting for the appellation to which I have objected, the provincial name of '*Native Oil of Laurel,*' I shall describe the method of procuring it, and enumerate its principal chemical and medicinal properties, so far as these have been investigated and examined.

"The *Native Oil* is yielded by a tree of considerable height; its wood is aromatic, compact in its texture, and of a brownish colour, and its roots abound with essential oil.

"This tree, which is found in the vast forests that cover the flat and fertile regions between the Oronooko and the Parime, has, from an analogy already alluded to, been supposed to belong to the natural order *Laurineæ;* and though Humboldt and Bonpland do not seem to have been acquainted with its singular and important produce, its botanical characters may very possibly have been described in their *Nova Genera et Species Plantarum Americæ Septentrionalis,* under the genera *Ocotea*, *Persea,* or *Litsea.* This question I am, however, unable to solve, having never seen the parts of fructification.

"The *Native Oil of Laurel* is procured by striking with an axe the proper vessels in the internal layers of bark; while a calabash is held to receive the fluid, which gushes out in such abundance, that several quarts may be caught from a single incision, if the operation be performed with dexterity. So obscure, however, are the indications of these reservoirs, that the Indians, (with perhaps a little of their usual exaggeration) assert that a person unacquainted with the art may hew down a hundred trees, without collecting a drop of the precious fluid. In many of its properties the native oil resembles the essential oil, obtained by expression, distillation, and other artificial processes: it is, however, more volatile and highly rectified than any of them, its specific gravity hardly exceeding that of alcohol. When pure, it is colourless and transparent; its taste is warm and pungent; its odour aromatic, and closely allied to that of the

oily and resinous juice of the *Coniferæ*. It is volatile, and evaporates without residuum at the ordinary atmospheric temperature. It is inflammable, and, except when mixed with alcohol, gives out in its combustion a dense smoke. Neither the alkalies nor the acids seem to exert any sensible action upon the *Native Oil;* when combined, however, with sulphuric acid, the mixture assumes a momentary brownish tinge, but soon regains its transparency. The Oil of Laurel dissolves camphor, caoutchouc, wax, and resins, and readily combines with the volatile and fixed oils. It is insoluble in water, soluble in alcohol and in ether. Though the specific gravity of the oil greatly exceeds that of ether, the compound, formed by combining them in the proportion of one part of the former to two of the latter, floats upon the surface of pure ether, and may therefore be the lightest of all known liquids.

"With respect to the medicinal properties of the *Native Oil*, it bears, when externally applied, the character of a powerful discutient, and appears, when exhibited internally, to be diaphoretic, diuretic, and resolvant: by many it is believed to be analeptic, alterative, and anodyne; and to promote the exfoliation of carious bones.

"Without listening to the extravagant reports of the Indians, who exalt it into a panacea, we must admit that its efficacy has been demonstrated in cases of rheumatism, swellings of the joints, cold tumours, and in the various disorders supposed to originate in a vitiated state of the blood (*mala sanguis.*) In all these cases it is exhibited in doses of from thirty to forty drops, twice a-day, accompanied by frequent and continued friction of the parts affected with the oil, while the body is kept moderately warm, and a free use of diet and drinks prescribed to the patient. The same practice is said to have been attended with the happiest effect in paralytic disorders; for this I cannot vouch, but have found it a valuable remedy in cases of nervous rheumatic headache, sprains, and bruises. A decoction of the root has been recommended as an alterative in various chronic complaints.

"I am fully aware of the reaction that often results from over-excited and disappointed expectation, and of the discredit into which a new remedy frequently falls in consequence of the unmerited encomiums which those who bring it into notice have injudiciously bestowed upon its virtues.

'Quidquid excessit modum,
Pendet instabili loco.'

"However slight the credibility we may feel inclined to attach to the evidence of the Indians, upon which our knowledge of the medicinal properties of the native oil almost entirely reposes, the information derived from experience surely claims that attention, and justly challenges that examination, which we should not hesitate to bestow on the speculations of the mere theorist.

Let inquiries be instituted, and experiments be made, by those whom their situation and scientific attainments qualify for the task. By these investigations it may not only be ascertained what degree of confidence ought to be reposed in the unqualified encomiums which the Indians lavish upon this anomalous production, but properties unknown to them may be discovered; and its history, which they have been accused, perhaps unjustly, of involving in obscurity, be satisfactorily elucidated. To the chemist, and the vegetable physiologist in particular, the *Native Oil of Laurel*, elaborated by the unassisted hand of nature, in a state of purity which the operose processes of art may equal, but cannot surpass, presents an interesting subject of inquiry, and a wide field of speculation."

Samples of this oil having been received by H. Rainy, Esq. they were, through his liberality, communicated to Dr. Thompson, Dr. Wollaston, and Mr. Macintosh. The latter gentleman has found it to answer the purpose of dissolving the caoutchouc, preparatory to this substance being employed to render cloth, &c. water-proof, equally well with the Naphtha which he has been accustomed to use. It is therefore to be hoped, that besides its medical properties, the Native Oil of Laurel may be found to possess qualities that may be serviceable in the arts, and thus become an important article in commerce.

We may here observe, that in M. Kunth's Synopsis of the plants described in the *Nova Genera, &c.* of Humboldt, mention is made of a doubtful species of laurel, *Laurus Jaritensis,* (which is not, however, enumerated in the large work,) a native of shady forests in the district of Oronooko, of which it is said, " Folia odorem terebinthinum spirant." May not this be the tree in question? The great South American travellers, Humboldt and Bonpland, did not, however, discover it either in flower or fruit.

We are assured by Mr. Parker, that Dr. Hancock intends to use his utmost endeavours to procure perfect specimens of the plant which affords the *Native Oil of Laurel*, which he will transmit to this country.

Dreadful Effects of an Excessive Use of Sulphur.—Professor Olmsted, in a geological excursion in the county of Wake, North Carolina, met with the following fact, which we present in his own words: " At Mrs. Thomson's, where I dined, I saw a fellow creature whose sufferings made me truly thankful even for my own imperfect health. He was the son of Mrs. T., and nearly fifty years of age. When I came into the porch, he was sitting before the entrance in an elbow chair, surrounded with pillows, with no clothing but a frock of linen, that came half way down his knees. The ghastly image of death was imprinted on every part of his emaciated frame. The bones of his arms and legs were hardly covered with flesh, and the joints of the knees, and

the largest joints of the fingers, were increased to an enormous size. His knees were drawn together beyond the power of separation, shortening the left leg so that nothing but the toes reached the floor. The hands were forcibly and irremovably fixed to the breast, the distorted fingers being bent backwards, forming an arch over the swollen mound at the joints. A little motion with the ends of the fingers was all the sufferer could produce; and I was much impressed with the insensibility of man to his ordinary blessings, when I saw this poor invalid call several times for a servant to come and brush off a fly that was biting his leg unmolested. On his back was a large running sore, which his friends were uncertain whether to ascribe to disease, or to the effects of lying so long in a horizontal and immovable posture. The daily dressing of this sore, which was performed while I was present, gave him so great pain, that he was unable to sit up a moment after it was completed. Three servants took him up with all possible care, and laid him on the bed; while the excruciating misery which this gentle movement produced, filled the mouth of the sufferer with groans and entreaties. Here he lay, bewailing his lot in a hollow, piteous tone, and crying, "Oh that thou wouldst hide me in the grave, that thou wouldst keep me secret, until thy wrath be past!" On inquiring the cause of his sufferings, I was told that, three years ago, being afflicted with rheumatism, he took the advice of a quack to attempt its cure by enormous doses of sulphur. With this view, he mixed a pound of sulphur with five quarts of water, and stirring it, took half a pint three times a day, until he had taken six pounds of sulphur. Soon after, commenced the pain and distortion of his limbs, which had subjected him to increasing and excruciating sufferings ever since."—*Silliman's Journal.*

Medicinal properties of the waters of the Mississippi—Mineral impregnation of the well of Henderson, Ohio. [Extract of a letter to the Editor.]—"My health being much enfeebled, necessity compelled me to take a trip to New Orleans for the sake of using the water of the Mississippi river. The effect was salutary and the voyage a pleasant one. The Mississippi water, when freely drank, produces powerful effects—when filtrated it is very clear, and may be drunk in large quantities without burthening the stomach. It certainly possesses some properties not common to other waters, but its qualities I believe have never been examined by chemists. My ill health I attributed to the water of Henderson It is strongly impregnated with some mineral. The common opinion is, that it is impregnated with copperas. The ground on which Henderson and the country adjacent stand, has, from 40 to 60 feet beneath the surface a substratum of mineral coal, the best for fuel and the forge that I ever saw. This coal is washed bare on the banks of the Ohio and Green rivers—intermixed is a

mineral of a bright green and yellow hue, which is used for the same purposes as copperas. Families that die woollen or cotton cloth collect a quantity of this coal, put it into a proper vessel, to which they add the water, and boil till the water has extracted the mineral from the coal. In this water they immerse the articles to be dyed. Copperas too has been manufactured from this coal, in some small quantities, and sent abroad for market.

"Through this coal all the waters in and about Henderson probably pass, and thereby acquire strong mineral properties, which give them a particular taste, and render them pernicious to health."—*Silliman's Journal.*

Tartar Emetic—in Pneumonic Affections.—Mr. Pechier, physician at Geneva, states that he has found by experience, that tartar emetic is an exceedingly efficacious remedy in pneumonic inflammation. He was first led to use this article in cases of this kind, from the following considerations: As an evacuent, tartar emetic must cleanse the stomach and bowels, promote the circulation in the portal system, diminish the mass of blood circulating in the thoracic viscera, and, by weakening for a time the digestive powers of the stomach, check chylification and the too rapid formation of blood. Besides these effects, it appeared to him, that the disturbance produced by vomiting, in the animal economy, must tend to divert from the breast those defluxions (*le mouvement fluxionaire*) which occur in pectoral complaints. He states that in all cases of pleurisy, (*le point*) in which he was consulted, he immediately resorted to the use of tartar emetic. He gave it at all periods of the disease, and under every circumstance, under which it occurred to him. He generally gave from 6—12 to 15 grains in twenty-four hours, dissolved in about six ounces of water, in doses of a table-spoonful of the solution, every two hours. In addition to this remedy, he directed the patient to drink every hour a cup of some mild aperient infusion; and if the patient experienced much distress and anxiety of feeling, he ordered a full dose of laudanum to be administered. When dysury with a dry hot skin came on, he directed from one to two drachms of nitre to be added to the solution. He noticed the following effects from the influence of this remedy: Generally after the second or third dose, the patient vomited, which was shortly after followed by one or two evacuations from the bowels. Sometimes it produced no sensible effect, although the patient perceptibly grew better. He generally found the patients to experience a sensation as if a piece of velvet were applied to the skin of the breast. If before the disease was subdued the remedy was omitted only for 3 or 4 hours, the symptoms invariably became worse. He says that his experience has taught him that tartar emetic given in large doses is much less apt to excite vomiting, than when the doses are small.

He generally cured his patients with eight doses of the medicine, and seldom found the disease to continue beyond the third week. In addition to the employment of the tartar emetic, he, in some instances, applied a blister over the affected part.—*Bibliotheque Universelle, Juni p* 144. *See also Annales Cliniques de Montpellier, T. XLII. p.* 171.

Hydrops Soccatus Ovarii.—Dr. Kruiger-Hansen, of Guistraue, treated a case of *Hydrops Saccatus Ovarii* successfully, in the following manner: After tapping it, he inflated the sack through the canula of the trochar, and suffered the air to remain in it 15 minutes. The patient felt herself much relieved by this operation. After a few months the ovarium enlarged again, and the part which had been punctured by the trochar inflamed, broke open, and discharged for several days a purulent fluid, followed by the discharge of a great number of small pieces of membrane having a putrid smell. She did not appear to suffer much in her general health during these discharges; the wound gradually closed, and the woman is now well.* Dr. D. Zandi, professor of Surgery in the university of Halle. in a volume published in 1816,† gives an account of several cases of encysted tumor treated successfully in the same way. In his interesting essay on this subject, he maintains that encysted dropsy, both of the peritoneum and ovaries, may be cured by a surgical operation. He was led to adopt this practice by the following incident: A lady at Halle, had a large encysted tumor on the crown of her head, which had been of several years' standing. A piece of lunar caustic was laid on the middle of the tumor, and kept on by an adhesive plaster. The caustic formed an opening into the tumor and gave discharge to a matter resembling a thick solution of gum arabic. A compress was then laid on the opening, and secured by a deachylon plaster. The matter continued to flow from the wound for several days, and became towards the end very fetid. In about fourteen days after, the internal membrane of the cyst began to separate along the edges of the orifice, and soon became entirely separated from its surrounding parts. The cyst was then drawn out by degrees through the opening with a small forceps. The wound healed rapidly, and the patient was rid of her tumor. He also gives an account of an abdominal encysted tumor which was treated with success in this way. The whole cyst was gradually drawn out by the wound. He advises, that after the fluid is evacuated, a long tent be introduced through the orifice into the cyst. A slow inflammation or separation of the cyst supervenes, and may then be extracted by the surgeon.

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* Graefe and Walter's Journal, III—4.

† Beitraege zur vervollkommung der Heilkunde, Halle, 1816.

On the Internal use of Muriate of Ammoniæ; by Dr. A. F. Fisher.—Dr. Fisher recommends the internal use of large doses of sal amoniac as a most valuable remedy in schirrus of the prostate gland; and in thickening and even ulceration of the internal membrane of the bladder. It should be given in very large doses, and used for a considerable time, in order to obtain its beneficial effects in these affections. When properly used, it seldom fails to perform a cure. Dr. F. asserts, also, that this remedy has afforded the most unequivocal benefits in schirrus ovaria and uterus. Drs. Blume and Kuntzmann, have published statements in confirmation of the experience of Dr. F. on this subject. They speak of this article as a very powerful remedy in the diseases mentioned. Dr. F. gave it in combination with bitter extracts.—*Hufeland's Journal, Feb.* 1824.

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Artificial Castor Oil.—Dr. Hufeland states that a drop of the *oil of croton* added to an ounce of *Ol. papaveris*, forms a mixture exceedingly similar to Castor Oil. A table-spoonful of such a mixture produces the same effect as the same quantity of Ol. Ricini.—*Hufeland's Journal, Feb.* 1824.

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Muriatic Acid generated in the Stomach during the process of digestion.—It has long been known to physiologists that a powerful acid exists in the stomach of animals during the digestive process. Many experiments have been performed by different chemists to ascertain the nature of this acid, and they have generally led to the conclusion, that it was the acetic. The experiments of Dr. Prout, however, which were lately communicated by him to the Royal Society, prove, what he had before suggested,—that the saline matters found in the stomach consist chiefly of the alkaline muriates, and also a large portion of *free muriatic acid.*

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Injection of Opium into the Veins.—Mr. Coindet, of Geneva, conceiving that opium might be rendered inert by the influence of digestion upon it while in the stomach, injected it into the veins with remarkable success in a case of idiopathic tetanus. The patient was a young girl, 14 years old, who had been subject to the most violent form of hysteria, the paroxysms, of which finally became exasperated so violently as to assume the appearance of tetanus. In these paroxysms, which sometimes lasted twenty minutes or more, the whole muscles of the body participated in the painful tension. The respiration was embarrassed —the pulsations of the heart became enfeebled and irregular— and the poor girl was threatened with suffocation. This succes-

sion of paroxysms had lasted three weeks, and was increasing in degree, when Mr. Coindet visited the patient. Her ordinary attendant had administered an ounce of laudanum at a dose, without producing any effect on the system, which led Mr. Coindet to suppose that the remedies were decomposed in the stomach, and did not reach the circulation unchanged. He, therefore, determined to inject a solution of opium into the veins. A scruple of opium was dissolved in distilled warm water and filtered. In the presence of several medical gentlemen, an opening was then made into the basilic vein of the right arm, and the point of a syringe introduced, when a drachm was injected every five minutes, taking care not to allow any air to pass in, and to move the point of the syringe as little as possible in the vessel. At the first injection the respiration became more regular, and less rapid—the state of the pulse and other symptoms remaining the same. At the second injection the breathing became quite natural—the pulse rose to one hundred, and grew fuller—the surface became elevated in temperature, and soon broke out in a gentle perspiration—the spasms were less violent, and the patient heaved some deep sighs like a person awakening from sleep. At the third injection the convulsions almost ceased, and she articulated some words distinctly. After the fourth and fifth injections, the patient entirely recovered. The operation was not followed by any alarming symptoms. The patient described the effect of the injections as if a torrent of liquid fire had been poured through the veins of the arm, concentrating in her chest, and thence dispersed over the whole body, attended with violent heat and pricking of the skin. These sensations were of a most painful nature. She finally became restored to health by the use of a bath, and a discontinuance of irritating purgatives, which she had been in the habit of using.

Case of Elongation of the Uvula producing Symptoms analogous to those of Chronic Pneumonia. By M. Cuynat, Chirurgien-major, &c.

A female, thirty years of age, born of healthy parents, and possessed herself of a healthy constitution, who had contracted a cough from frequent exposure to vicissitudes of temperature, after a year's suffering, presented the following symptoms, notwithstanding "the use of the most *heroic* and the most varied means which were considered proper for retarding the progress of a severe disorganization of the parenchyma of the lungs. The respiration was oppressed; a considerable constriction of the thorax existed; and acute, lancinating, and fugacious pains, increased on coughing and on full inspiration, were felt in that cavity; the patient was continually attempting to swallow or to hawk up mucus from the throat; a fixed pain, accompanied with tickling, existed in the larynx; the appetite was almost null; the tongue was

sometimes white, and sometimes in a natural condition; her pale countenance, extreme emaciation, depressed condition, both moral and physical, seemed, however, to indicate the profound lesion of some important organ; the chest, carefully explored, resounded very well in every part, the pulse was sometimes small, unequal, and at other times frequent and full, and frequently changed in less than half an hour to one or other of these conditions."

M. Cuynat, on examining the fauces, found the uvula elongated, loose on the base of the tongue, and distended with serous fluid. It occurred to him that all the symptoms experienced by the patient were occasioned by the elongation of this appendix. All internal treatment was discontinued, and the superabundant portion of the uvula was cut off. Fifteen days had scarcely elapsed, before all the symptoms previously indicated had ceased: the patient was soon completely restored to health.—*Revue Medicale*, Tom II. p. 353, and *Journal General de Medecine, Dec.* 1823.

On Cancer of the Heart, with Cases. By MM. Andral and Bayle.—The development of scirrhous, and encephaloid or medullary structures in the heart, is doubtless very rare, as it has not been observed by many modern physicians who are much engaged in pathological research. MM. Bayle and Cayol say (*in the article Cancer, in the Dictionnaire des Sciences Medicales,*) that they have never seen cancer of this organ. M. Laennec also says, that he has never observed in the heart any encephaloid structure, or any other species of cancerous disease. M. Recamier, however, has found the heart in part converted into a scirrhous substance resembling hog's-skin, in a subject which also had cancerous tumours in the lungs.

M. Cruveilheir (*Essay on Pathological Anatomy*) appears to have seen, in an old man, an organic lesion of the heart, having the characters of cancer. It consisted, he states, of cancerous masses of the tuberculous form, of which the greater number were seated on the surface of the heart, and a few only in its substance.

In 1813, M. Rullier read to the society of the Faculty of Medicine of Paris, a case of cancer of the heart (*Bulletins de la Faculte*, Tom. III. p. 357.) A man, aged thirty-five years, of a rickety habit, and subject to catarrhs, was seized, soon after an attack of peripneumony, with a pain in the left side of the chest, with great oppression. The abdomen was painful, especially towards the right side, where he felt a considerable tumour. The patient always lay on his left side, which did not sound when struck. Œdema of the extremities gradually supervened, and at the end of much suffering he expired.

On *dissection*, the lungs were found in a healthy condition; but the heart was more voluminous than natural, and its cavities enlarged. The texture of this organ presented scarcely any traces of its primitive organization: the whole of its muscular sub-

stance formed not more than a twelfth of its mass: the rest, that is eleven-twelfths, was composed of a scirrhous, and partly carcinomatous substance, forming irregular prominences, of which the greater number extended from the external to the internal aspect of the organ. A large carcinomatous tumour was found in the mesentery: a scirrhous degeneration of structure was also observed in several parts of the parietes of the intestinal canal.

In a work recently published by M. Ollivier, on the Spinal Cord and its diseases (p. 262,) a case of cancer of the heart also is to be found. A woman, aged forty six years, died of an attack of apoplexy at the Hospital Salpétriére, in 1822. No particular symptom had betrayed an affection of the heart before her death.

On *dissection*, the muscular fibres of the parietes of the right ventricle were observed to have been changed into a yellowish-white medullary tissue, offering all the characters of the encephaloid structure. This cancerous degeneration of texture occupied only the inferior half of the muscular parietes of this ventricle: the ventricle of the left side was sound.

Scirrhous tumours have been also mentioned, by Senac and Hildanus, as having been found by them in the heart. The three following cases place the occasional supervention of this form of organic lesion still farther beyond doubt, and are, in other respects, interesting.

Case 1st.—A man, aged fifty six, was admitted into *la Charite*, in May. 1821, with all the symptoms of hypertrophy of the parietes of the left ventricle of the heart. His pulse was hard but regular. He complained of orthopnœa, and was anasarcous. He died on the eighth day after his entrance into the hospital.

"*Dissection.*—On bringing the heart into view, we were struck with the number of irregularities which its posterior aspect presented. In cutting through these irregular prominences, we found them formed of a very hard tissue, bluish gray and semi-transparent at some parts, at others white and more opaque, and marked by red lines which crossed each other, leaving between them areolæ of variable forms and sizes. This texture occupied nearly all the external paries of the right ventricle: the white colour appeared to extend into its internal membrane. In a few points only could the fasciculi of muscular fibres be discerned, and there they appeared discoloured and wasted. The muscular fibres were more distinct towards the internal surface of the ventricle. The columnæ carneæ were sound. The parietes of the right auricle presented throughout the same kind of morbid texture; and the part which separates the orifice of the two venæ cavæ was destitute of its fibrous structure. The cardiac artery was sound in the midst of the cancerous disease. The left ventricle was enlarged, and its aortic orifice narrowed by ossification."

Case 2d.—"A lapidary, thirty-seven years of age, had enjoyed a good state of health until his thirty-fifth year. He then became

asthmatic. During five or six months afterwards, he felt only difficulty of, and slight pain during, respiration: at the end of this period he was seized with a violent pain in the region of the heart, extending through the left side of the thorax. He suffered, at the same time, violent palpitations, increase of dyspnœa, vomiting, and a momentary loss of recollection. At the end of an hour the pain diminished, and, on the following day, he was restored to his usual state. During the year of his life that followed this attack, the pain on respiration increased slowly, and he experienced seven or eight paroxysms of the same kind as that now described: he compared the pain which he felt during these paroxysms to that of tooth-ache. He was admitted into *La Charite* about the end of November, 1821. At this period he was emaciated: his face was remarkably pale and yellow. He had an evening exacerbation of fever, without increase of perspiration. On examining the state of his organs, they all appeared regular in their functions; and we were at a loss how to explain the cause of the marasmus and hectic fever with which he was harassed. In the course of December he frequently felt lancinating and passing pains in the region of the heart: these were always of the same character. He also occasionally had palpitations; but in the intervals between these auscultation could not detect any very appreciable lesion of the heart. About the commencement of January the inferior extremities, then the superior, and, lastly, the face, became œdematous, and the patient died suddenly without pain.

"*Dissection.*—The muscles were pale and thin, and the body entirely deprived of fat. The external paries of the right ventricle of the heart was occupied by an irregular tumour, which, from its large size and form, resembled a supernumerary heart: it extended from the point of the ventricle to its base, and passed beyond this latter part, encroaching, to the extent of a few lines, upon the structure of the auricle. This tumour had replaced nearly all the muscular fibres, of which only a very thin layer was perceptible at the internal surface of the ventricle, and at several points it projected considerably into this cavity: it was entirely formed of the encephaloid tissue, partly softened. The other portions of the heart were sound, as were also the lungs. The cranial and abdominal organs presented nothing remarkable."

Case 3d.—"An old soldier, who had been in a state of mental imbecility for several years, had a tumour on his left cheek, which had rapidly increased, and, in July, 1821, had approached a state of ulceration. From that time to the first of October, an ichorous and fœtid matter continued to flow from his mouth; and the pulse was occasionally very quick. Respiration appeared perfectly free; the action of the heart excited no attention; and the patient preserved a considerable fullness of habit. He died the 23d of October, without evincing any new symptom deserving remark.

"*Dissection.*—The body was muscular and fat. The skin every

where presented a remarkable redness, resembling that of erysipelas, and differing essentially from the lividity frequently observed after death. The inguinal glands were swollen and red.

"The tumour of the left cheek filled the maxillary sinus, and rested beneath on the lower jaw: in this situation the gums were red and swollen. The superior maxillary bone and the teeth adhered to the tumour towards its upper and internal aspects, and were destroyed to a considerable extent. The part of the tumour projecting into the mouth was deeply ulcerated, and bathed in a brownish, ichorous, and very fœtid pus, which seemed to flow also from the carious bones. When divided in various directions, the tumour presented a uniform grayish colour, and a lardaceous consistence and appearance.

"About eight ounces of limpid serosity was found in the pericardium. The heart, which was about a third more voluminous than in its natural state, offered to the touch several of its parts considerably hardened. The cavity of the right auricle was much dilated, its parietes thickened, condensed, and possessing a grayish colour, and lardaceous structure. The orifice of the venæ cavæ was straightened. The circumference of the right auriculo-ventricular orifice presented no trace of its original structure, but was transformed into a lardaceous matter of an inch and a-half thickness. The left auricle was altered in a similar manner, and the pulmonary veins were contracted at their orifice. The ventricles were sound, but the inter ventricular structure was in a cancerous state. The internal membrane of the auricles offered here and there lively red spots, arising from an injection of blood into the minute vessels. The mucous membrane of the intestines was red, and lined with a bloody mucosity."

"The facts which we have adduced are doubtless too few to enable us to trace the history and symptoms of this rare form of organic disease of the heart. A few corollaries, not entirely destitute of importance, may, however, be deduced from them. They evidently show that the muscular fibres of the heart can be partly destroyed, without any very evident derangement of the circulation. The third case shows that, in the heart, as in other organs, the cancerous structure produces no disturbance of the general nutrition of the body, as long as softening of it does not supervene. The second case does not contradict this position; for here there existed marasmus, hectic fever, and softening of the cancer. In neither of the cases was death the *immediate* result of the influence exercised by the cancerous disease on the circulation. In the cases recorded by MM. Rullier and Ollivier, the patients died of an intermediate disease. In the first of the cases here related, death seemed to result more directly from aneurism of the heart. Lastly, in the second case, it was owing to the change produced in the nutritive functions that the cancer of the heart occasioned the fatal termination."—*Revue Medicale, Fevrier*, 1824.

Dr. Copeland *on Cerebral Excitement and Blood-letting.*—We consider the following views of Dr. Copeland as of very great practical importance: on the younger part of the profession, in particular, they cannot be too strongly impressed, nor too often repeated. Cerebral excitement may be consequent upon inflammation, general plethora, or local determination; but it is not necessarily so, according to the prevalent but erroneous opinion. If we bleed a man, or other animal, frequently, either when in good health, or labouring under cerebral excitement, we shall produce, in proportion to the depletion, symptoms of determination to the brain—delirium—and death, with cerebral derangement up to the latest moment of existence; and, on dissection, the brain will be found gorged with blood, that is, in comparison with any other part of the body. The only exception to this is, where the loss of blood has been so great and sudden as to produce instant death. In profuse uterine hæmorrhage, how often is it necessary to watch the patient with the utmost care to prevent mental derangement? Irritative fever almost always supervenes in consequence of the cerebral excitement, and notwithstanding the uterine irritation, which might be supposed to counteract it.

Cerebral excitement and local determination are also produced most commonly—independent of depletion—by a low state, or debility of the system; and to those whose health is vigorous, the maxim "ubi irritatio ibi fluxus," seldom applies; and whether the irritation be physical or moral, the observed effects will be proportional to its intensity, and to the state of the system—*Anderson's Quarterly Journal, July*, 1824.

M. Beclard's *Extirpation of the Parotid Gland.*—This formidable operation, thought by several eminent surgeons to be impossible, was performed by M. Beclard, with what we may call partial success.

"L. F. Clout, a paper-stainer, was admitted into the Hospital La Pitié, on the 19th of August, 1823, on account of a scirrhous ulceration of the parotid gland. This man was aged forty-seven years, of an apparently good constitution, and of a sanguineo-nervous temperament. The disease had commenced eight years before; but, from being long indolent, and comparatively small, it had rapidly increased, and became the seat of lancinating pains: it had lost also its mobility. On admission into the hospital, this cancerous tumour possessed a very considerable elevation. At its superior margin it raised the lobe, and appeared to involve the cartilaginous portions of the auditory canal. It extended downwards more than an inch from the angle of the jaw; backwards, it adhered to the sterno-mastoid muscle, and its anterior portion covered a great part of the masseter. It was ulcerated in two situations, and had but little motion. There was no appearance of cancerous cachexia. The patient desired an operation, and M. Beclard performed it in the following manner:

"This patient having been placed on his side, the tumour was inclosed by two curved incisions, the one made at the anterior and posterior part, the other at the anterior and superior part of its circumference. That part of the tumour placed over the masseter was first dissected off, from before backwards, with sufficient ease. It was next attempted to detach it from below upwards; but a projection of its substance plunged deeply behind and beneath the internal pterigoid. To endeavour to remove this portion of the scirrhous at the commencement, with the rest of the tumour, would be to expose the operator to the risk of hæmorrhage, which might be difficult to repress during the operation; M. Beclard, therefore, decided to dissect upwards, by striking the bistoury into the structure of the tumour itself, on a level with the projections, whilst the instrument divided before and behind the cellular tissue, connecting it to the adjoining parts. Half the inferior circumference of the cartilage, contributing to form the auditory canal, which was enveloped in the diseased part of the parotid adjoining, was removed with it in this first dissection. Numerous arteries were tied at this stage of the operation; and M. Beclard continued the extirpation of the rest of the tumour A portion of the anterior margin and internal surface of the sterno-mastoid, being converted into scirrhous substance, was excised with the bistoury. The projection situated behind the jaw was removed in successive slices: nearly the whole scirrhous mass was already dissected away in this manner, when a large jet of arterial blood announced the lesion of the external carotid, or the division of one of its principal branches. M. Beclard placed the fore-finger of his left hand on the place whence the hæmorrhage proceeded, seized the bleeding vessels with his forceps, and passed a needle with a double ligature around it; an assistant tied the vessel above and below the wound in it, which was lateral. The artery was held forward and outwards, whilst he completed the operation of that part of the tumour which remained in the pit, formed by the ramus of the jaw. One small projection of the tumour, placed before the cervical vertebræ, was only left. On account of its proximity to the internal jugular vein, M. Beclard contented himself with passing two ligatures beneath this part, by means of a needle, and with tying the one at its superior, the other at its inferior extremity.

"The considerable wound which remained after this operation, presented, in its anterior part, the masseter as if dissected, and the labial artery denuded, but not divided; at its posterior part, the mastoid apophysis, and the sterno-mastoid, with its interior and anterior portion removed; internally, the styloid apophysis, the external carotid surrounded with two ligatures, the stylo-hyoide muscle, and the digastric; and the small portion of the tumour which was tied, formed the bottom of the wound, which opened upwards into the meatus auditorius externus. The wound was dressed forthwith.

"The extirpated tumour presented scirrhous texture, mixed with a small portion of tuberculous matter. It was impossible to distinguish the structure proper to the gland itself.

"No particular occurrence took place during the first days of the treatment. All the right side of the face remained a stranger to any sort of expression, except what was occasioned by the action of the left side, producing some degree of motion in the soft parts of the right. The right eye remained continually open, which, owing to the irritation and dryness of the conjunctiva thus occasioned, gave rise to slight but obstinate opthalmia. At the period of suppuration of the wound, the patient experienced deafness of the same side, owing either to inflammation having been propagated to the internal membrane of the ear, or to the quantity of the discharge, and swelling of the adjoining parts. The suppuration was going on kindly, and healthy granulations covered the wound, when, on the twelfth day, the patient experienced rigours, followed by heat and fever. Phlegmonous erysipelas attacked the surrounding parts, and was followed with great delirium. General and local bleedings, during the three following days, caused but slight amendment. After this period the erysipelas on the face terminated by desquamation; but an abscess formed deep below the right trapezius muscle. The pulse remained frequent, and the derangement of the mental faculties continued. For several days the discharge was excessive. A counter-opening was made; and graduated compression was applied, which occasioned adhesion of the parietes of the abscess, the ligature placed on the external carotid, and that part of the tumour which was tied, came away. The wound was approaching to entire cicatrization, the fever subsided, and the strength and appetite returned; but to the preceding delirium succeeded taciturnity, which was only broken by paroxysms of rage; mental alienation had supervened to the febrile delirium.

"Three months after the operation, the wound was closed, unless near the ear, where it had assumed a character denoting a return of the cancer. The patient was still maniacal, and seemed affected with a chronic inflammation of the membranes of the brain. He died three months and three weeks after the operation.

"*Dissection.*—The external carotid artery was observed to terminate in cellular tissue, resulting from the cicatrization of the wound. There appeared no vestige of the parotid. The internal jugular vein was obliterated at the same height, and seemed to commence anew lower down, by communicating with the superficial branches. The corresponding lateral sinus was not obliterated. Some pus was found in the meatus auditorius externus. The membrane of the tympanum was sound. There was a marked injection of the pia mater, and of the choroid, which was redder than the choroid plexus. A serosity was found in the ventricles,

suspending particles similar to those deposited by some red wines."*

M. Weinhold's *Extirpation of the Parotid.*—This is another testimony in favour of this formidable operation. M. Weinhold says he has removed the parotid in three different cases with success. There are three stages, he says, of scirrhosity in the gland; the first that of induration; the second confirmed scirrhous; and the third open cancer.—In the first stage the gland may be extirpated by the scalpel; in the second, it is better to use ligatures and caustic; in the third, no remedy has been hitherto found. The great danger in the operation for extirpating, is wounding the carotid artery, or dividing the par vagum, either of which, would in all probability prove fatal.—*Anderson's Quarterly Journal for* 1824.

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English Opium.—It is stated in the Transactions of the Society of Manufactures and Commerce, that the common poppy is cultivated very extensively for the manufacture of opium. Messrs. Cowley and Staines, of Winslow, produced one hundred and forty-three pounds of excellent opium in one season, from eleven acres and five poles of land, for which they received a premium from the society. A medal has been given by the same society, to J. W. Jeston, Esq., surgeon, for an improvement in collecting the juice of the poppy. This improvement consists in collecting the juice immediately after it exudes from the capsule, instead of allowing it to become dissipated on the capsule. The capsule is scarified with a sharp instrument, guaged to a proper depth, when the juice is scraped off with a kind of funnel-shaped scoop, fixed into the mouth of a phial. When one phial is filled the scoop is removed to another, and the juice is evaporated in shallow pans. Some varieties of the poppy are much more productive than others. The opium thus produced in England, has been used for several years by physicians and surgeons, who pronounce it superior to the best Turkey and East India opium.

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* Med. Rep.